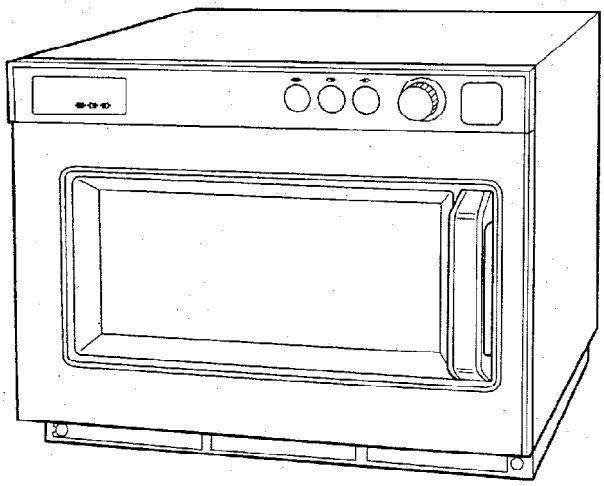
ORDER NO. MOD9606106C2

Service Manual

Microwave Oven

NE-1446
NE-1456
NE-1846
NE-1856



86年 7月 18日

承認	検印	作成

Specifications

		NE-1446	NE-1456	NE-1846	NE-1856
Power Source :		230 V AC Single Phase, 50Hz			
Power Requirement :		2270 W		2830 W	
High frequency Output :	HIGH	1400 W (IEC-705)		1800 W (IEC-705)	
	MED	700 W		900 W	
	DEF	340 W		340 W	
Frequency :		2450 MHz			
Timer :		NE-1446/1846: 25 Min. ····· HIGH 30 Min. ····· MED, DEF NE-1856/NE-1456: 15 Min. ····· HIGH, MED 30 Min. ····· DEF			
Outside Dimensions :		422 mm (W) X 508 mm (D) X 337 mm (H)			
Oven Cavity Dimensions :		330 mm (W) X 310 mm (D) X 175 mm (H)			
Weight :		30 kg			
Specification subject to change without notice.					

Panasonic®

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

This service manual covers products for following markets.
When troubleshooting or replacing parts, please refer to the country identifications shown below for your applicable product specification.
EPG·····For Continental Europe SPG·····Scandinavian Countries

WARNING

This products should be serviced only by trained, qualified personnel.

VARNING

Denna apparat skall repareras endast av härför kvalificerad personal.

VAROITUS

Laitetta saa huoltaa ainoastaan tehtävään koulutettu, ammattitaitoinen huoitomies.

ADVARSEL

Reparasjoner må kun utføres av kvalifisert personell.

ADVARSEL

Disse produkter må kun reparcres af kvalificerede teknikere med specialuddannelse.

ATTENTION
RAYONNEMENT PAR MICRO-ONDES

LES PERSONNES NE DOIVENT PAS ÈTRE EXPOSÉES A L'ÉNERGIE PAR MICRO-ONDES QUI PEUT PAYONNER DU MAGNÉTRON OU D'UN AUTRE DISPOSITIF GÉNÉRATEUR DE MICRO-ONDES EN CAS D'UTILISATION OU DE CONNEXION INCORRECTES. TOUTES LES CONNEXIONS A MICRO-ONDES D'ENTRÉE ET DE SORTIE. LES GUIDES D'ONDES. FLASQUES ET JOINTS DOIVENT ÈTRE SÙRS. NE JAMAIS FAIRE FONCTIONNER LE GÉNÉRATEUR SANS UNE CHARGE PRÈVUE POUR ABSORBER L'ENERGIE PAR MICRO-ONDES, NE JAMAIS REGARDER A L'INTÉRIEUR D'UN GUIDE D'ONDES OUVERT OU UNE ANTENNE PENDANT QUE LE GÉNÉRATEUR EST EN FONCTION.

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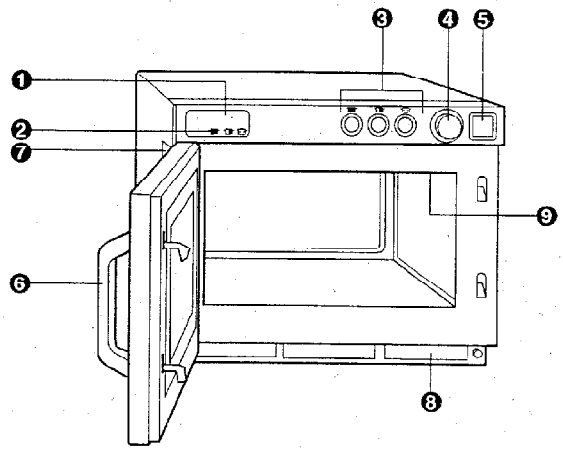
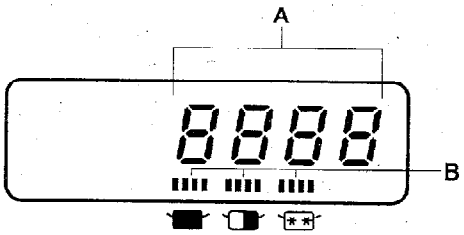
OUTLINE DIAGRAM

NE-1846/NE-1446

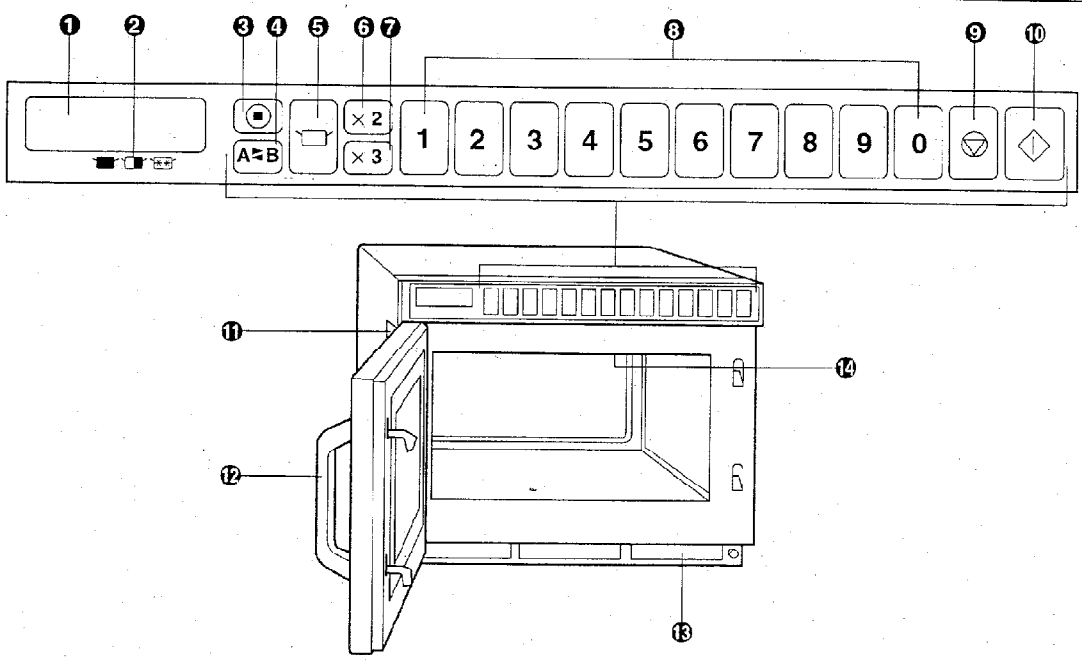




❶ Digital Display Window (see below)
❷ Power Level Indicator Display
❸ Power Level Selector Buttons
❹ Time Dial
❺ Start Button (◇)
❻ Door Handle
❼ Oven Lamp Cover
❽ Air Filter
❾ Splatter Shield (top of inner cavity)

A—Heating Time Display (min.,sec.)
B—Power Level Indicator
HIGH
MEDIUM
DEFROST

NE-1856/NE-1456



❶ Digital Display Window (see below)
❷ Power Level Indicator Display
❸ Program Pad (▣)
❹ Shift Pad
❺ Power Level Selector Pad (▭)
❻ Double Quantity Pad
❼ Treble Quantity Pad
❽ Number/Memory Pads
❾ Stop/Reset Pad (▽)
❿ Start Pad (◇)
⓫ Oven Lamp Cover
⓬ Door Handle
⓭ Air Filter
⓮ Splatter Shield (top of inner cavity)

OPERATION PROCEDURE (NE-1856/NE-1456)

1. Manual heating for single stage

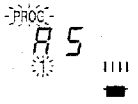
OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	0
3. Tap POWER LEVEL pad ( ) once. (Set to High power)	1
4. Set the desired heating time by tapping number pads 2, 0, 0. (Set to 2 minutes)	1 2 00
5. Tap START pad ( ).	1 59
6. When the time is up, you hear 3 beeps sound.	0
7. Open the door and take out the water load. The display goes back to previously setting time.	1 2 00
8. Close the door. 1 minute later, display will return blank.	

2. Manual heating for 2nd or 3rd stage

OPERATION	DISPLAY
1. Follow step 1 to 4 for single stage.	1 2 00
2. Tap POWER LEVEL pad ( ) twice. (Set to MED power)	1 2
3. Set the desired heating time by tapping number pads 1, 0, 0. (Set to 1 minute)	1 2 1 00
4. Tap START pad ( ). (1st stage)	1 2 2 59
5. When the 1st stage time is up, you hear 1 beep sound. (2nd stage)	2 59
6. When the time is up, you hear 3 beeps sound.	0
7. Open the door and take out the water load. The display goes back to previously setting time.	1 2 3 00
8. Close the door. 1 minute later, display will return blank.	

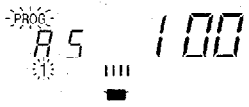
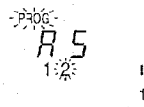
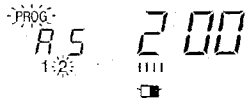
NOTE: For a 3rd stage heating cycle, select a further power level and time between steps 3 and 4 above.

3. Memory setting for single stage

OPERATION	DISPLAY
1. Display must be blank before programming can begin. Touch ⏹ pad.	
2. Tap 5 pad. (Set to memory pad 5) NOE: Previously selected power and time will appear.	
3. Tap POWER LEVEL pad ( ) once. (Set to High power)	
4. Set the desired heating time by tapping number pads 1, 0, 0. (Set to 1 minute)	
5. Touch ⏹ pad again.	
6. 3 seconds after, the display window will go blank.	

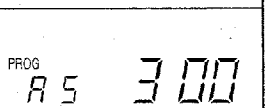
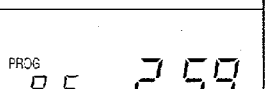
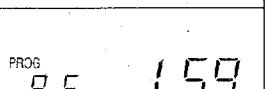
TO PROGRAM MEMORY AREA B: Follow steps 1 above. Touch the Memory Shift pad A►B and a small "B" will appear beneath the flashing "PROG".
Touch the memory pad you wish to program, and the previously selected time and power level will appear in the display window.
NOTE: Once the Memory area B has been selected it cannot be changed back to Memory area A. If you do not require Memory area B, cancel it by touching the cancel pad and begin again.

4. Memory setting for 2nd or 3rd stage

OPERATION	DISPLAY
1. Follow steps 1 to 4 for memory setting for single stage.	
2. Tap POWER LEVEL pad ( ) twice. (Set to MED power)	
3. Set the desired heating time by tapping number pads 2, 0, 0. (Set to 2 minutes)	
4. Touch Program pad again. Heating time is displayed by adding single and 2nd stage heating time.	
5. 3 seconds after, the display window will become blank.	

NOTE: For a 3rd stage heating cycle, select a further power level and dial in a time, between steps 3 and 4 above.

5. Memory pad heating

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	
3. Tap 5 pad.	
4. Tap START pad (◇). (1st stage)	
5. (2nd stage)	
6. When the time is up, you hear 3 beeps sounds.	
7. Open the door and take out the water load.	
8. Close the door. Display will return blank after 1 minute.	

NOTE: When program is locked, heating can be started automatically by tapping memory pad.

6. Programming Double or Treble Quantity Pad

OPERATION	DISPLAY
1. The display window must be blank before programming can begin.	
2. Press the ⊙ pad.	PROG
3. Press [0] pad. The pad number and previously selected time and power will appear.	PROG A 0 (1) 2 00
4. Press [X2] pad. The previously programmed magnification number appear. ex. 15 means 1.6 times. ※**NOTE: When you want program for treble quantity heating, press [X3] pad.**	PROG A 0 2 16
5. Set the desired magnification by pressing the appropriate number pad. ex. 1.5 times: press [1] and [5]	PROG A 0 2 15
6. Press the ⊙ pad again.	PROG A 0 2 15
7. After 3 seconds, the display will goes blank.	

7. Memory Pad Heating for Double or Treble Quantity Heating

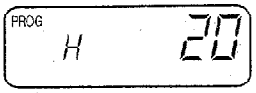
OPERATION	DISPLAY
1. Open the door place a water load in the oven and close the door.	0
2. Press the [X2] pad. **NOTE: When you want treble quantity heating, press [X3] pad.**	PROG 2
3. Press the desired memory pad. ex. memory 0 (programme No. A-0)	PROG A 0 (1) 3 00
4. Press ◇ pad.	PROG A 0 (1) 2 59
5. When the time is up, you will hear 3 beeps sound.	0
6. Open the door and remove the water load.	0
7. Close the door. 1 minute later, display will return blank.	

8. Procedure to Program the Air Filter

OPERATION	DISPLAY
1. Open the door and leave it open.	0
2. While pressing ◇ pad, close and open the door.	0
3. Quickly press 3 pad. The display will show the length of time originally PRESET. ex: 100 hours	PROG H 100
4. Set the desired clean time by pressing appropriate pads. ex: 1230 hours, press 1, 2, 3, 0 pads.	PROG H 12 30
5. Press ⊙ pad.	PROG H 12 30
6. After 3 seconds, "0" will appear.	0
7. After the programmed time past, at the end of cooking, "FILT" will appear.	FILT

Note: To check the total number of hours used.
1. Open the door and leave it open.
2. Whilst pressing the ◇ press the "3" pad.
3. The display will show the number of hours used. "PROG" and "H" will appear in the display.

[Example]: If the oven has been used for 20 hours.



After 3 seconds "0" will appear in the display window.

9. To Read the Cycle Counter

OPERATION	DISPLAY
1. Open the door and leave it open.	0
2. While pressing ▽ pad, press each memory pad. The display shows the number of times each memory pad has been used. Within 3 seconds, pressing the ▭ pad to show the number of times the oven has been used in the manual mode. ex: 6666→6,666 times **NOTE: To read the number of times the oven has been used in the B side programmes. Press A-B shift pad. Then while pressing the ▽ pad press each memory pad.**	6666
3. Remove your finger from ▽ pad and quickly close door while the display is still showing a pad's cycle count. Display will now show the total cumulative number of times the oven has been used. ex: 99999→99,999 times.	9 9999
4. 3 seconds later, the display will go blank.	

NOTE: Total cumulative number includes programming memory heating and manual heating number of times has been used. Cooking times over 99,999 times will be back 0.

10. To Activate Program Lock

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle. Do not open the door.	
2. Press and hold ⊙ pad until the display show "PROG", "P" and "L". (for more than 5 seconds)	PROG
3. Programme lock feature now activated.	PROG P L

11. To Release Program Lock

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Leave it open. While pressing ▽ pad, press and hold ⊙ pad until the display will show "PROG" and "P". (for more than 5 seconds)	0
3. Program lock feature is now deactivated.	PROG P

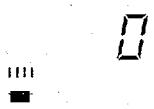
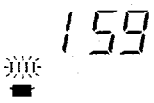
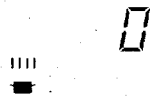
12. To Select Beep Tone Options

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door and leave it open.	0
3. Press ⊙ pad and then within 1 minute press 0 pad.	PROG 1 3 bE EP
4. Select the desired sound loudness level by pressing 0 pad. Repeated pressing of 0 pad will lower the loudnoss and all the way to silent.	PROG 1 2 bE EP
5. Press ⊙ pad again.	PROG 1 2 bE EP
6. Close the door. 1 minute later display window will go blank.	

To select length of tone at end of heating cycle there are 2 options.
A. 3 beeps (factory setting)
B. 60 seconds of short beeps.
To set for 60 seconds of short beeps.

OPERATION	DISPLAY
1. Complete steps 1-4 above. Do not close the door.	PROG 1 3 bE EP
2. Touch ⊙ pad and quickly select the desired tone length by touching 0 pad. "1" illuminated 3 beeps. "2" illuminated 60 seconds of beeps.	PROG 2 3 bE EP
3. Press ⊙ pad again. 3 seconds later, the display will "0".	PROG 2 3 bE EP
4. Close the door. 1 minute later display will go blank.	

OPERATION PROCEDURE (NE-1446/1846)

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load and close door.	
3. Select desired power level if other than ▬ (HIGH) power.	
4. Set the desired heating time by turning the timer dial. NOTE: (HIGH·····MAX 25 MIN (MED, DEF···MAX 30 MIN)	
5. Press the start button.	
6. When the time is up, display will blink "0" until door is opend.	
7. Open the door and remove water load.	
8. Close the door. 1 minute later, display will go blank.	

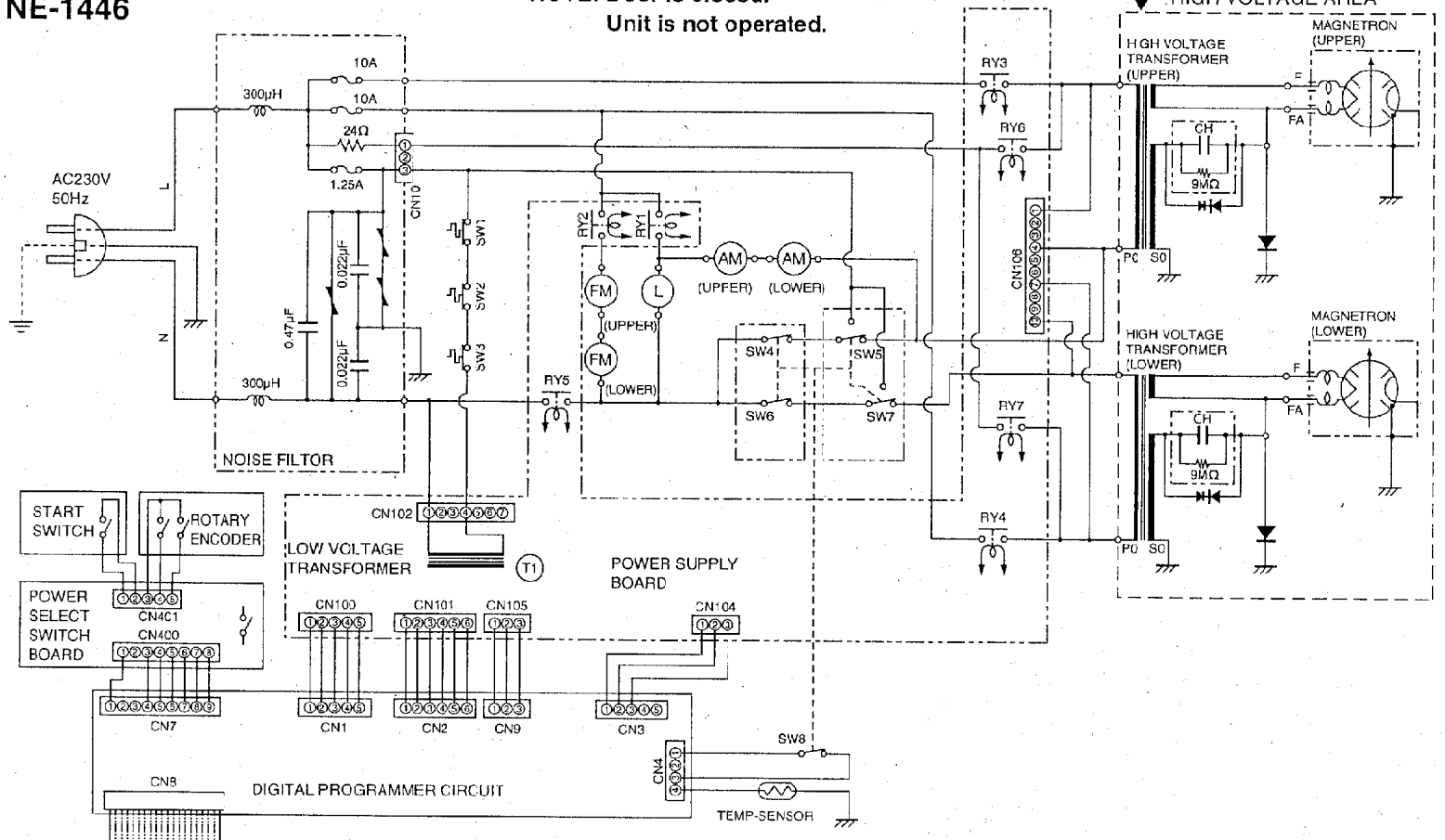
Notes:

1. When you press the Start Button with door open, "0" will appear in the display in all cases.
2. Even after setting the heating time you can still change the power level.
3. If you wish to change the heating time during heating, simply adjust the timer to desired minutes and seconds.

NE-1846 SCHEMATIC DIAGRAM
NE-1446

NOTE: Door is closed.
Unit is not operated.

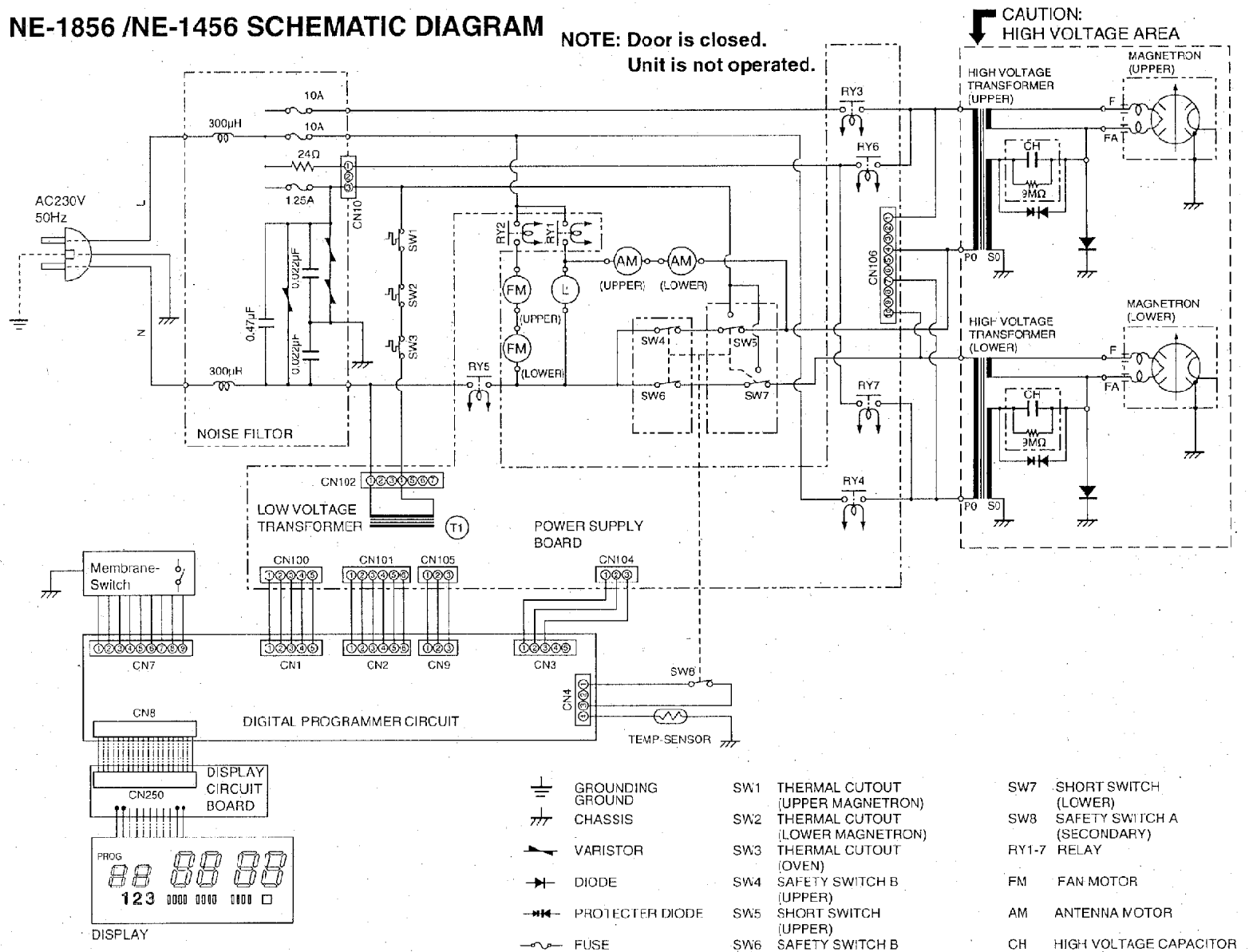
CAUTION:
HIGH VOLTAGE AREA



	GROUNDING GROUND	SW1	THERMAL CUTOUT (UPPER MAGNETRON)	SW7	SHORT SWITCH (LOWER)
	CHASSIS	SW2	THERMAL CUTOUT (LOWER MAGNETRON)	SW8	SAFETY SWITCH A (SECONDARY)
	VARISTOR	SW3	THERMAL CUTOUT (OVEN)	RY1-7	RELAY
	DIODE	SW4	SAFETY SWITCH B (UPPER)	FM	FAN MOTOR
	PROTECTER DIODE	SW5	SHORT SWITCH (UPPER)	AM	ANTENNA MOTOR
	FUSE	SW6	SAFETY SWITCH B (LOWER)	CH	HIGH VOLTAGE CAPACITOR
				L	OVEN LAMP (240V 25W)

NE-1856 /NE-1456 SCHEMATIC DIAGRAM

NOTE: Door is closed.
Unit is not operated.



	GROUNDING GROUND	SW1	THERMAL CUTOUT (UPPER MAGNETRON)	SW7	SHORT SWITCH (LOWER)
	CHASSIS	SW2	THERMAL CUTOUT (LOWER MAGNETRON)	SW8	SAFETY SWITCH A (SECONDARY)
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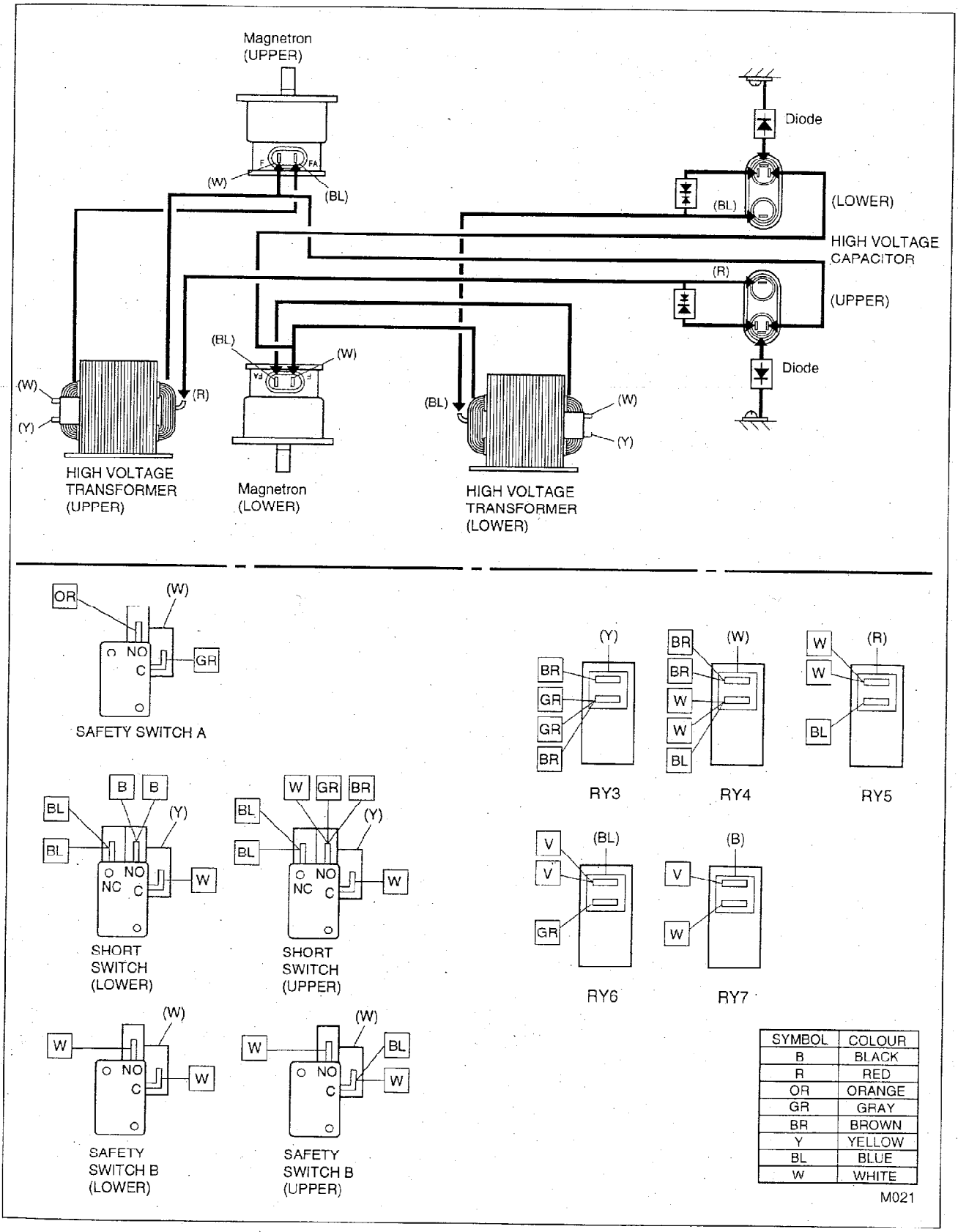
	DIODE	SW4	SAFETY SWITCH B (UPPER)	FM	FAN MOTOR
	PROTECTER DIODE	SW5	SHORT SWITCH (UPPER)	AM	ANTENNA MOTOR
	FUSE	SW6	SAFETY SWITCH B (LOWER)	CH	HIGH VOLTAGE CAPACITOR
				L	OVEN LAMP (240V 25W)

S-331 EP

WIRING DIAGRAM

NOTE: When replacing, check the lead wire colour as shown.



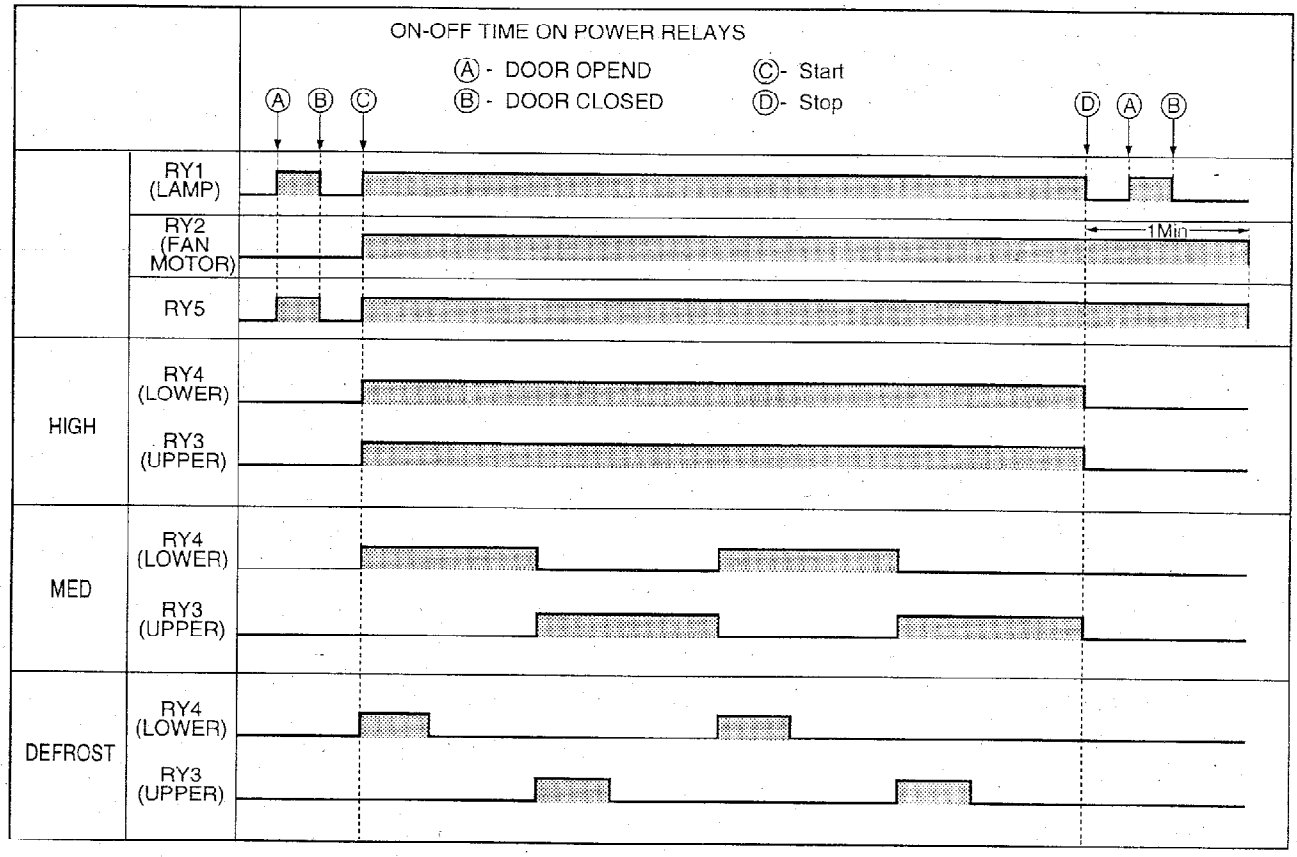
SYMBOL	COLOUR
B	BLACK
R	RED
OR	ORANGE
GR	GRAY
BR	BROWN
Y	YELLOW
BL	BLUE
W	WHITE

M021

DESCRIPTION OF OPERATING SEQUENCE

Variable power cooking control

The coil of power relay A and B are energized intermittently by the digital programmer circuit, when the oven is set to MEDIUM or DEFROST power position. The digital programmer circuit controls the ON-OFF time of the power relay A and B contacts in order to vary the output power of the microwave oven. One complete ON and OFF cycle of the power relay is 44 seconds. The relation between indications on the control panel and the output power of the microwave oven is as shown in **Figure.**



96-002M

CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is high voltage, high current equipment.
Though it is free from danger in ordinary use, extreme care should be taken during repair.

CAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

1. Check the earthing

Do not operate on a 2 wire extension cord. The microwave oven is designed to be used in a completely earthed condition. It is imperative, therefore, to make sure it is properly earthed before beginning repair work.

2. If the door lock, the door switch, the door seal or the door develops a malfunction, be sure not to operate the oven until complete repairs are made.

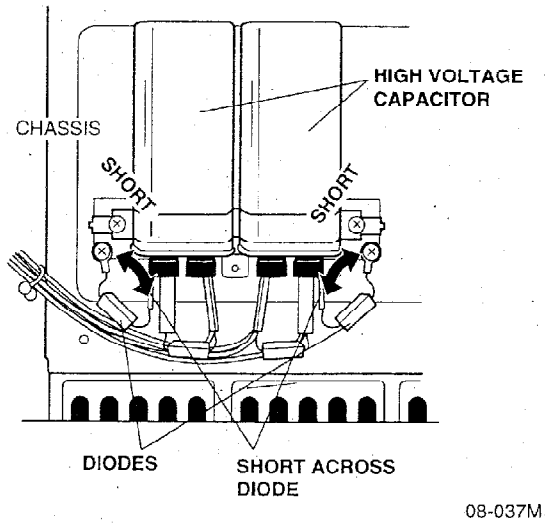
If the oven is operated with any of these parts in imperfect condition, hazardous microwave leakage might occur.

WARNING

Never operate the oven until the following are confirmed:
(A) The door is tightly closed.
(B) There is no broken hinge or door arm.
(C) The door seal is not damaged.
(D) The door is not bent or warped.
(E) There is no other visible damage.

3. Warning about the electric charge in the high voltage capacitor.

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitor. When replacing or checking parts, remove the power plug from the outlet, wait 30 seconds and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated jumper lead wire or an insulated handle screwdriver to discharge.



08-037M

Discharge the 2 High Voltage Capacitors.
Touch chassis side first then short to the high voltage capacitor terminal.

Important Note

1. High voltage above 250 volts are existing on following parts during operation.
   *Magnetron
   *High Voltage Transformer
   *High Voltage Diode
   *High Voltage Capacitor
   Unusual attention should be paid during repair or troubleshooting of product.
2. If the microwave oven is operated with incorrect installed door hinge or magnetron, it can cause microwave leakage of over 5mW/cm^2.
   Hence it is absolutely necessary to check if magnetron and door hinge are correctly and safely installed after repairs or replacement.

WARNING

Never touch any circuit wiring with your hand nor with an insulated tool during operation.

4. When parts must be replaced, always remove the power plug from the outlet, and discharge the high voltage capacitor.

5. Confirm after repair

(A) After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing.
Microwave might leak if screws are not properly tightened.
(B) Make sure that all electrical connections are tight before inserting the plug into the wall outlet.

6. Avoid inserting nails, wire, etc. through holes in unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any other holes or gaps, because such objects may work as an antenna and cause microwave leakage.

7.

CAUTION
MICROWAVE RADIATION

Personnel should not be exposed to the microwave energy which may radiate from the magnetron or other microwave generating device if it is improperly used or connected all input and output microwave connections waveguides, flanges, and gasket must be secure. Never operate the device without a microwave energy absorbing load attached. Never look into an open waveguide or antenna while the device is energized.

8.

CAUTION

High voltage parts may become uncovered when outer cabinet is removed.

(Swedish)

SÄKERHETSÅTGÄRDER ATT TAGA HÄNSYN TILL VID FELSÖKNING OCH REPARATION

Till skillnad fran andra apparater har mikrovågsugnar högspänningstarkströmsutrustning.
Även om ugnen är helt säker vid normalt bruk, skall största försiktighet vidtagas vid reparation.

VARNING

Vid reparation i närheten, eller vid byte av magnetron, skall armbandsur avtagas.

1. Kontroll av jordning.

Använd ej en 2-ledad anslutningssladd. Mikrovågsugnen är tillverkad så att den skall användas jordad. Tillse därföratt ugnen är ordentligt jordad innan arbetet påbörjas.

2. Om dörrlåset, dörromkopplaren eller dörrtillslutningen visar någon felaktighet, använd ej ugnen innan felet är avhjälpt.

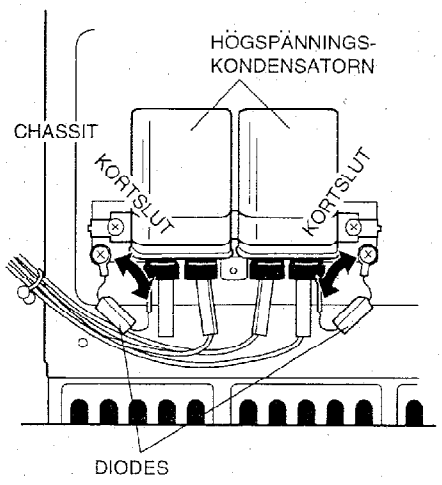
Om ugnen används när något av dessa fel har uppstått kan ev. Mikrovågsläckage uppstå.

VARNING

Sätt aldrig på ugnen innan följande har kontrollerats:
(A) Dörren är ordentligt stängd.
(B) Dörrtätningslisten inte är skadad.
(C) Dörren är skev, höjd eller otät.
(D) Gångjärnen är hela.
(E) Att annan synlig skada inte finns.

3. Varning för elektrisk ström I högspänningskondensatorn

CA: 30 sekunder efter det att ugnen stängts av, kvarstår en elektrisk laddning I högspänningskondensatorn. Vid utbyte eller kontroll av delar, stäng av ugnen, vänta I 30 sekunder och kortslut därefter kondensatorn (Anslutningen för ledning från dioden) till ytter höljets jord genom att använda en isolerad kortslutningskabel.



02-016M(S)

Kontrollera att kortslutningskabeln är jordad till chassit innan högspänningskondensatorn kortslutes

VIKTIGT

1. Under drift finns spänning överstigande 250V i apparaten på följande ställen:
   *Magnetronen
   *Högspänningstransformatorn
   *Högspänningsdioden
   *Högspänningskondensatorn
   Stor försiktighet skall iakttagas under felsökning och reparation.
2. Om ugnen används med felaktigt installerad dörr och/eller magnetron kan mikrovågsläckage överstigande 5mW/cm²uppträda. Följaktligen är det absolut nödvändigt att kontrollera att dörr och/eller magnetron är korrekt och säkert installerade efter utbyte eller reparation.

VARNING

Gör inga mätningar i högspänningsdelen eller av glödspänning för magnetronen.

4. Vid byte av delar, tag alltid ur nätkontakten från vägguttaget och urladda högspänningskondensatorema.

5. Kontroll efter reparation.

(A) Efter reparation eller vid byte av delar tillse att skruvar, flänsar och tätningar ej fattas eller ä lösa. Mikrovågor kan läcka ut om detta ej åtgärdats.
(B) Alla elektriska kopplingar skall < ara väl förbundna innan nätkontakten anslutes.

6. Stoppa aldrig in någon form av metallföremål i håligheter eller springor under det att apparaten är påslagen.

Metallföremål kan fungera som antenn och förorsaka mikrovågs läckage.

7.

VARNING
för
MIKROVÅGSSTRÅLNING.

Mikrovågsenergi kan stråla från magnetronen eller från annan mikrovågsgenererande anordning om den används eller ansluts felaktigt. Alla anslutningar för mikrovåg, såsom flänsar och tätningar måste vara betryggande ur säkerhetssynpunkt. Starta aldrig anorningen utan mikrovågsabsorberande belastning. Mikrovågsstrålning från en öppen vågledare eller antenn har sådan strålningstäthet att uppenbar skaderisk föreligger.

LAITTEEN HUOLLOSSA JA KORJAUKSESSA HUOMIOONOTETTAVIA VAROTOIMENPITEITÄ

Toisin kuin monet muut kotitalouskoneet toimii mikroaaltouuni suurella käyttöjännitteellä ja-virrala.
Vaikkakin uuni on täysin turvallinen normaalikäytössä, on sen korjauksessa noudatettava ehdottomasti varotoimenpiteitä.

VAROITUS

Magnetronia vaihdettaessa tai sen läheisyydessä työskenneltäessä tulee rannekello irroittaa.

1. Jos uunin oven lukkoon, sen kytkimeen tai tiivisteisiin tai itse oveen tulee jokin vika, ei uunia saa käyttää ennenkuin vika on korjattu.

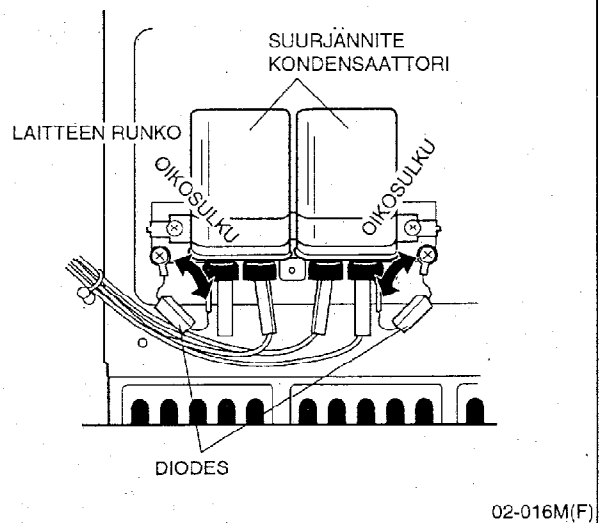
Jos uunia käytetään oven tai sen jonkin osan ollessa vioittunut, saattaa tapahtua vaarallista mikroaaltovuotoa.

VAROITUS

Ennen uunin käynnistämistä on aina ensin tarkistettava että:
(A) Uunin ovi on suljettu kunnolla.
(B) Oven tiivistyslistat eivät ole vahingoittuneet.
(C) Ovi ei ole vino, vääntynyt tai epätiivis.
(D) Oven saranat ovat ehjät.
(E) Ettei uuni ole mitenkään näkyvästi vaurioitunut

2. Huom! Sähkö varautuu korkeajännitekondensaattoriin.

Kun uuni on kytketty OFF-asentoon jää sähkövaraus korkeajännitekondensaattoriin noin 30: neksi sekunniksi. Kun asennat tai tarkistat uunin osia kytke uuni OFF-asentoon, odota 30 sekuntia ja oikosulje korkeajännitekondensaattorin kosketin (Diodin liitosjohtimen pääte) kojeiston runkoa vasten eristetyllä "hyppylangalla".



02-016M(F)

Varmistakaa että hyppylanka on maadoitettu laitteen rungon sivuun ennen suurjännite kondensaattorin päätteen oikosulkemista

Tärkeä varoitus

1. Laitteen toimiessa seuraavissa osissa on yli 250 V suurjännite.
   *Magnetroni
   *Suurjännitemuuntaja
   *Suurjännitediodi
   *Suurjännitekondensaattori
   Laitteen korjaamisessa täytyy siksi olla erityisen varovainen.
2. Uunin väärin asennettu luukku tai magnetroni voi aiheuttaa mikroaaltovuotoa, joka ylittää 5 m W/cm^2. Tämän vuoksi korjauksen ja osien vaihdon jälkeen on ehdottomasti tarkastettava magnetronin ja uuniluukun oikea asennus.

VAROITUS

Magnetronin hehkujännitettä tai sen suurjänniteosan jännitettä ei saa mitata.

3. Kun laitteeseen vaihdetaan osia on virtajohdin aina irroitettava seinästä ja korkeajännitekondensaattorien jännite purettava.

4. Tarkistukset korjaustöiden jälkeen.

(A) Korjauksen tai osien vaihdon jälkeen on tarkistettava että kaikki ruuvit, laipat ja tiivisteet ovat paikallaan ja kiristettyinä. Mikroaallot saattavat vuotaa löysistä liitoksista.
(B) Kaikki sähköiset liitännät on suoritettava ennen virran kytkemistä.

5. Unnin kotelon reikiin tai aukkoihin ei saa työntää mitään metalliesineitä uunin ollessa käytössä.

Metalliesineet voivat toimia antenneina ja aiheuttaa mikroaaltovuotoa.

6.

MIKROAALTOSÄTEILYÄ

Käyttäjä ei saa joutua alttiiksi mikroaaltoenergialle, jota voi säteillä magnetronista tai muusta mikroaaltoja kehittävästä laitteesta, jos sitä käytetään väärin tai jos se kytketään väärin. Kaikkien mikroaaltoliitäntöjen sekä syöttö-että ulostulopuolella, aaltoputkien laippojen ja tiivisteiden tulee olla varmistettuja. Mikroaaltouunia ei koskaan saa käyttää ilman kuormaa jossa mikroaaltoenergiaa kuluu. Avoimeen aaltoputkeen tai antenniin ei koskaan saa katsoa virran ollessa kytkettynä.

SIKKERHETSTILTAK SOM MÅ TAS HENSYN TIL VED FEILSØKING OG REPARASJON

I motsetning til annet kjøkkenutstyr har mikrobølgeovnen høyspenning, sterkstrømsutstyr. Selvom ovnen er helt sikker ved normal bruk, må man være spesielt forsiktig ved reparasjon.

ADVARSEL

Ved reparasjon i nærheten, eller ved bytte av magnetron skal armbåndsur tas av.

1. Kontroll av jording.

Bpuk ikke 2-lederkabel, mikrobølgeovnen er laget slik at den skal jordes. Pass derfor på at ovnen er skikkelig jordet før arbeidet påbegynnes.

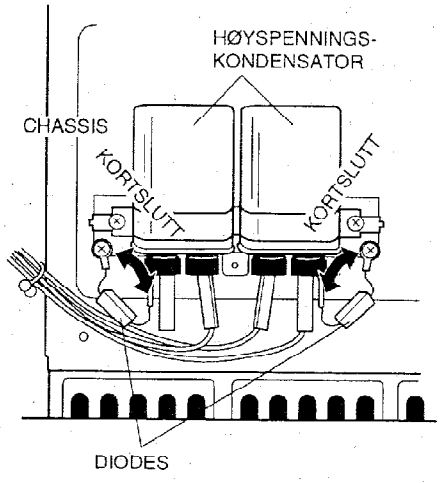
2. Om det finnes feil på dørlås, dørbryter eller dørtetning må ikke ovnen brukes før feilen er rettet. I motsatt fall kan mikrobølgelekkasje oppstå.

ADVARSEL

Bruk aldri ovnen før følgende er kontrollert:
A. Døren er ordentlig stengt.
B. Dørtetningslisten ikke er skadet.
C. Døren er skjev, bøyd eller utett.
D. Gangjernene er hele.
E. At det ikke er annen synlig skade.

3. Advarsel vedrørende elektrisk ladning i høyspenning kondensatoren.

Ca. 30 sekunder etter at ovnen er slått av, vil det fortsatt være igjen en elektrisk ladning i høyspenning kondensatoren. Ved kontroll eller skifting av deler, slå av ovnen, vent 30 sekunder og kortslutt høyspenning kondensatoren (Sammenkoblingspunkt for ledning fra dioden) til chassis med en isolert ledning som vist på.



02-016M(N)

Vaer sikker på att kortslutningskabeln er jordet til chassis før kortsluttning av høyspenningskondensatoren

Advarsel

1. Høyspenning over 250 volt finnes på følgende deler under drift:
   *Magnetron
   *Høyspenningstransformator
   *Høyspenningslikeretter
   *Høyspenningskondensator
   Vær spesielt oppmerksom under arbeid med disse delene.
2. Hvis mikrobølgeovnen blir brukt med feil montert dørhengsler eller magnetron, kan dette forårsake lekkasje av mikrobølgestråling på mer enn 5mW/cm^2. Derfor er det absolutt påkrevet å kontrollere at dørhengsler og magnetron er korrekt montert etter reparasjon eller utskifting.

ADVARSEL

Foreta aldri målinger i høyspenningsdelen eller glødespenningen for magnetronen.

4. Ved utskifting av deler, fjern alltid støpslet fra kontakten og kortslutt høyspenningskondensatorene.

5. Kontroller etter reparasjon:

(A) At skruer, flenser og tetninger ikke mangler eller er løse. Mikrobølger kan ellers lekke ut.
(B) At alle elektriske koblinger er iorden før kontakten settes i.

6. Putt aldri metallgjenstander inn i hull eller sprekker mens ovnen er tilkoblet.

Slike kan virke som antenne og forårsake mikrobølgelekkasje.

7.

ADVARSEL MOT MIKROBØLGESTRALING

Personer må aldri utsettes for stråling av mikrobølgeenergi. Alle tilkoblinger for mikrobølger, som flenser og tetninger må være sikkerhetsmessig betryggende utført. Start aldri apparatet uten mikrobølgeabsorberende belastning. Mikrobølgestråling fra åpen bølgeleder eller antenne har så stor strålingstetthet at det er stor risiko for skadevirkninger.

SIKKERHEDSFORSKRIFTER VED FEJLFINDING OG REPARATION

I modsætning til mange andre elektriske apparater arbejder mikrobølgeovne ved høje spændinger og store strømme.
Selv om en mikrobølgeovn er fuldstændig sikker ved normal brug, skal reparation foretages med højeste forsigtighed.

ADVARSEL

Tag Deres armbåndsur af, hvis De skal arbejde i nærheden af eller udskifte magnetronen.

1. Kontrol af jordforbindelse

Tilslut ikke ovnen ved hjælp af et 2-leder kabel. Mikrobølgeovnen er konstrueret til at arbejde med jordforbindelse. Se derfor efter at ovnen er forsvarligt jordet, før reparationen påbegyndes.

2. Hvis der er fejl ved låsen til ovndøren, omskifteren for døren eller tætningen af døren, må ovnen ikke anvendes, før fejlen er afhjulpet.

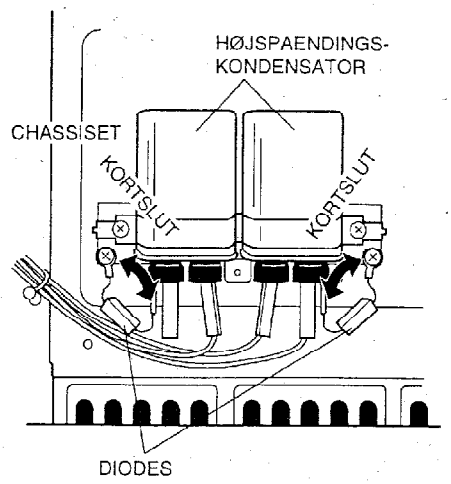
Hvis ovnen bruges, uden at sådanne fejl er afhjulpet, er der risiko for udstråling af mikrobølger.

ADVARSEL

Tænd aldrig for ovnen, før De har kontrolleret, at
(A) Døren er forsvarligt lukket,
(B) Tætningslisten omkring døren ikke er beskadiget,
(C) Ovndøren ikke er skæv, bøjet eller utæt,
(D) Hængslerne er hele, og
(E) Der ikke findes andre synlige beskadigelser.

3. Advarsel om opladning af højspændingskondensatoren

Indtil omkring 30 sekunder efter at ovnen er afbrudt, vil højspændingskondensatoren stadig være opladet. Afbryd ovnen, når De skal udskifte eller kontrollere komponenter, vent 30 sekunder og kortslut højspændingskondensatorens ene tilslutning (Tilslutning for ledning fra dioden) til chassiset med et isoleret stykke ledning.



02-016M(D)

Kortslutningstråden skal vaere stelforbundet før højspaendingskondensatoren kortsluttes

VIGTIGT

1) Følgende komponenter bærer højspænding (over 250 volt) under drift:
   *Magnetron
   *Højspændingstransformator
   *Højspændingsensretter
   *Højspændingskondensator
   Extra opmærksomhed bør udvises ved reparation/fejlfinding.
2) Såfremt ovnen betjenes med forket monteret dørhængsel eller magnetron, vil der være risiko for mikrobølgelækage over 5mW/cm^2.
   Det er derfor bydende nødvendigt at kontrollere disse komponenter efter endt reparation/udskiftning.

ADVARSEL

Undgå at berøre kredsløbene, hverken med hånden eller med isoleret værktøj, mens ovnen er i gang.

4. Hvis det er nødvendigt at udskifte komponenter, skal De altid fjerne netstikket fra stikkontakken og aflade højspændingskondensatorerne.

5. Kontrol efter reparation

(A) Efter reparation eller udskiftning af komponenter må De se efter, at alle skruer og tætningslister er på plads og fastspændt.
Der kan opstå lækage af mikrobølger, hvis skruerne ikke er forsvarligt strammet.
(B) Alle elektriske forbindelser skal være i orden, før De sætter netstikket i stikkontakten.

6. Sæt under ingen omstændigheder metalgenstande i åbninger på apparatet, mens det er i gang.

Metalgenstande kan virke som antenner og forårsage lækage af mikrobølger.

7.

FORSIGTIG
MIKROBØLGEUDSTRÅLING

Personer må ikke udsættes for mikrobølgeenergi, som kan udstråles fra magnetronen eller anden mikrobølgegenerator, hvis den er forkert anvendt eller forbundet. Alle mikrobølgeforbindelser, bølgeledere, flanger og pakninger skal være sikre. Tilslut aldrig apparatet uden en belastning, som kan absorbere mikrobølgeenergi. Se aldrig ind I en åben bølgeleder eller antenne, mens apparatet er I gang. Mikrobølgestrålingen fra en åben bølgeleder eller antenne har så stor intensitet, at der er overhængende risiko for skader.

DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

CAUTION
Servicemen should remove their watches whenever working close to or replacing the magnetron.

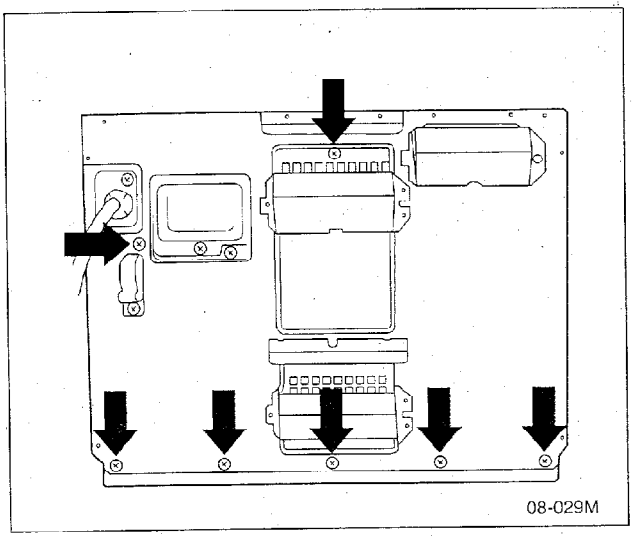
1. Replacement of magnetrons (Upper and Lower)

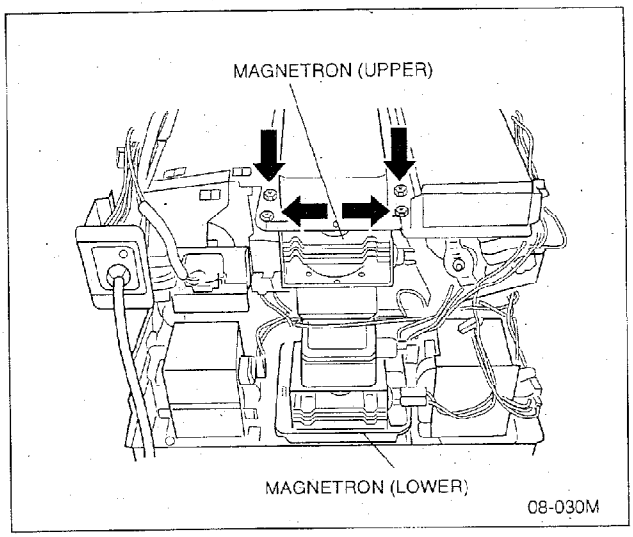
Upper magnetron
(A) Discharge electric charge remaining on the high voltage capacitors.
(B) Remove the entire rear panel by removing screws as shown.
(C) Disconnect all lead wires from magnetron and thermal cutout.
(D) Remove the 4 screws holding magnetron.
(E) Remove 2 screws holding thermal cutout.
(F) Remove the mounting bracket from magnetron and install it on the new magnetron.

Lower magnetron
(A) Discharge electric charge remaining on the high voltage capacitors.
(B) Remove the entire rear panel by removing screws as shown.
(C) Carefully place the unit on its left side (H.V.Capacitor side).
(D) Remove the cover by removing 2 screws.
(E) Remove the 4 screws holding magnetron by inserting screwdriver through the 4 openings on bottom plate.
(F) Remove 2 screws holding thermal cutout.
(G) Remove the mounting bracket from magnetron and install it on the new magnetron.

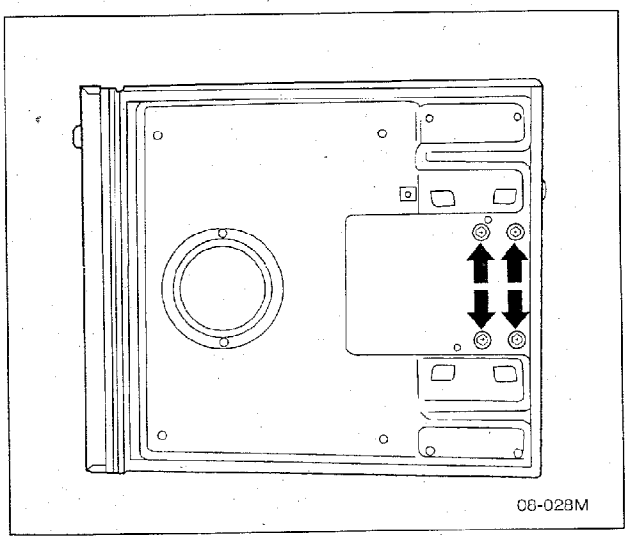
NOTE: To prevent microwave leakage, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron.

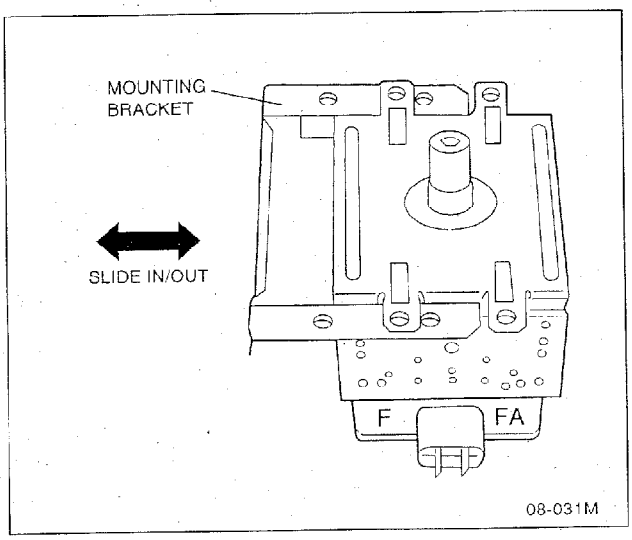
CAUTION
When connecting 2 filament lead wires to the magnetron terminals, be sure to connect the lead wires in the correct position. The lead wire with blue connector should be connected to "FA terminal" and white or pink one should be connected to "F terminal".


08-029M



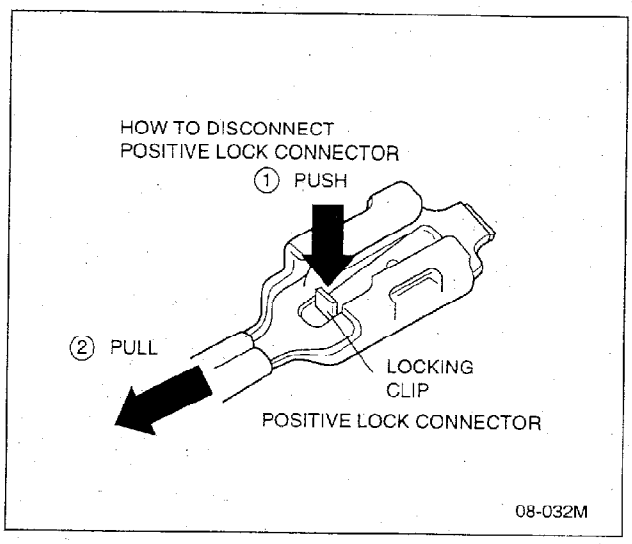
08-030M


08-028M



08-031M

Removal of Positive Lock connector
The positive lock connector is a specially designed loose free connector and you will find this connector in many lead wire connections. To remove this connector, pull the lead wire by pressing an extruded lever in the center of receptacle terminal as shown.



2. Replacement of power supply circuit board

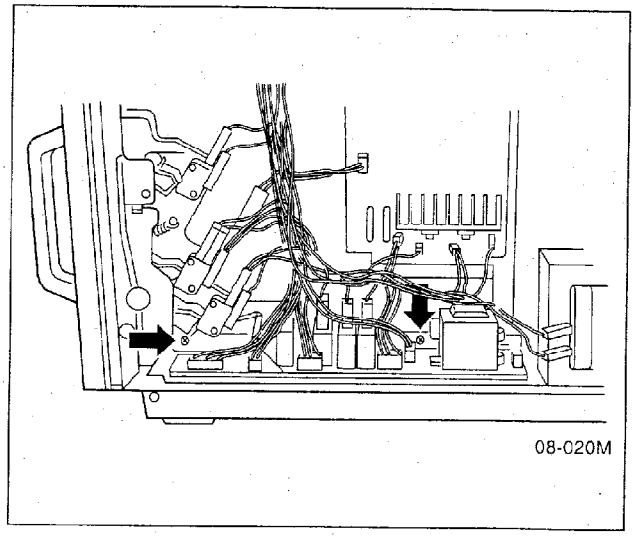
NOTE: Be sure to ground any static electric charge built up on your body, before handling the power supply P.C.B. and D.P.C..

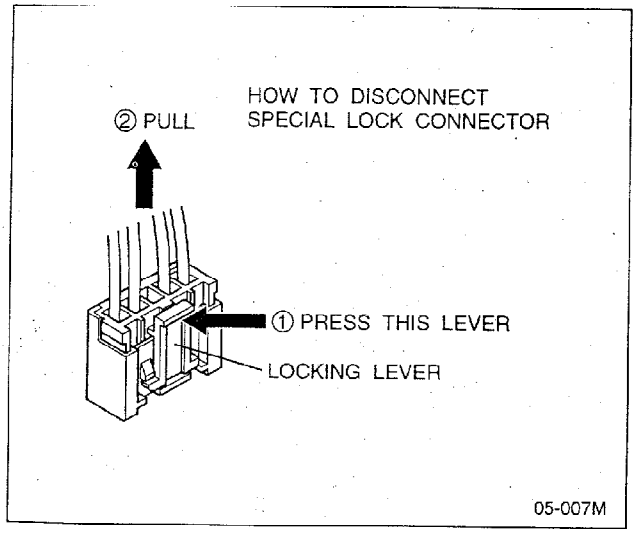
(A) Disconnect all lead wires from power supply circuit board.
(B) Remove the power supply P.C.B. together with its mounting bracket by first removing the 2 bracket holding screws.
(C) The power supply P.C.B. can be separated from mounting bracket by removing the 2 L.V.T. holding screws and unfastening the plastic clips.

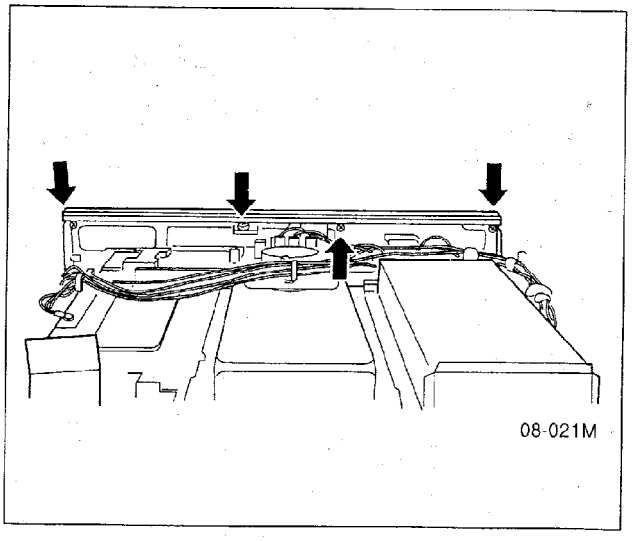
3. Replacement of digital programmer circuit board

(A) Remove grounding screw for membrane switch and D.P.C. ground.
(B)Remove 3 screws holding control panel assembly to detach it from main unit then remove connectors.
(C) Remove 2 screws holding the D.P.C. board and while pushing back on 2 plastic holding clips, remove the board.

NOTE: Please use care in handling the power supply P.C.B. and D.P.C. board to avoid damage.





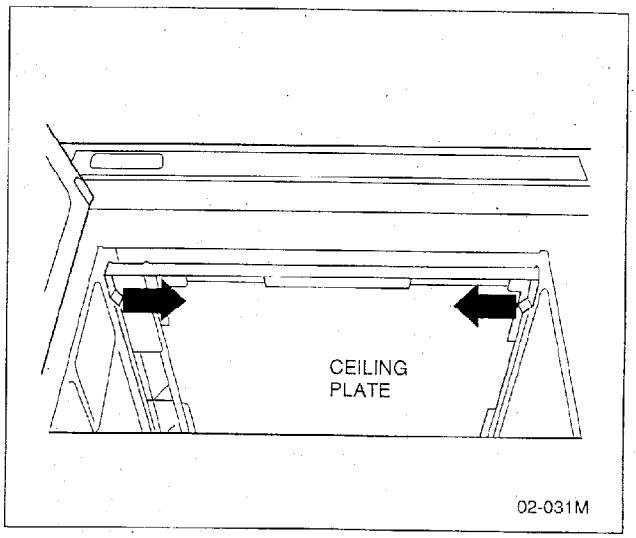


4. Replacement of upper antenna

CAUTION

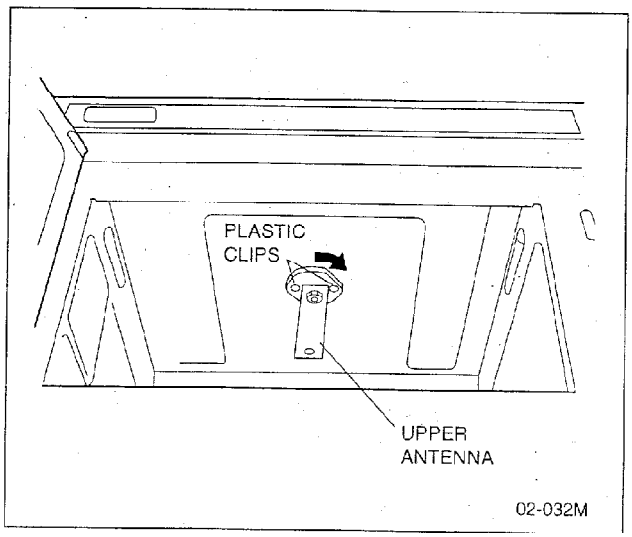
The upper and lower rotating antennas are different type and are not interchangeable each other. Care should be taken not to reverse the top and bottom antennas.

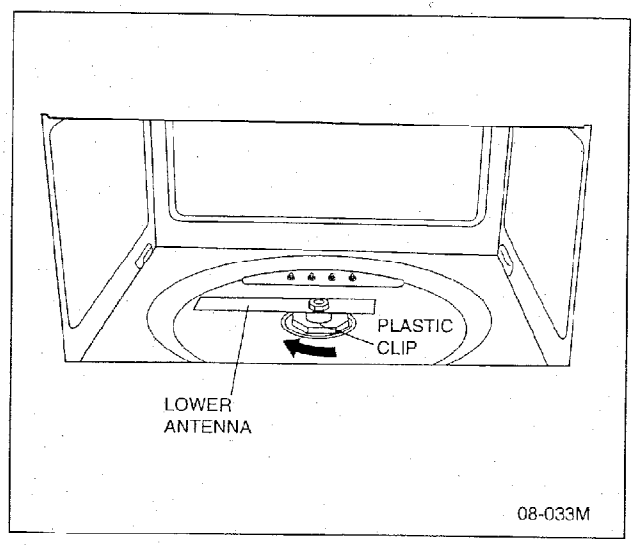
(A) Remove ceiling plate by gently moving the left and right tabs inward while pulling the plate down and outward.
(B) Using a small flat screwdriver or the like, remove two plastic clips located on the antenna ring. Next turn the antenna ring approx. 1/8 turn clockwise to unhook the tabs and pull off.

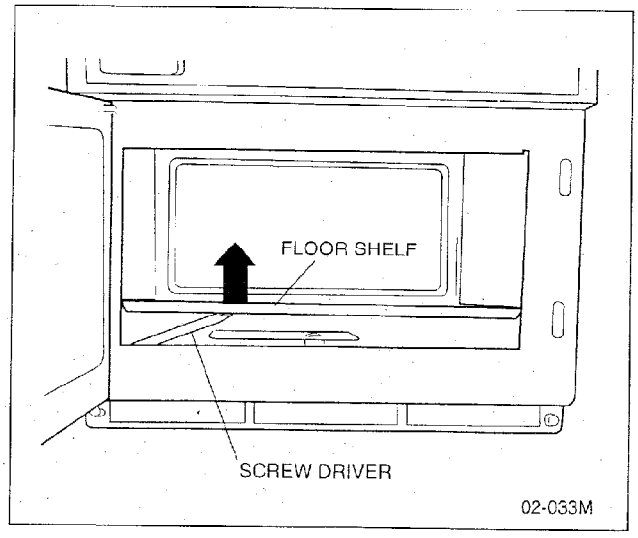


5. Replacement of floor shelf and lower antenna

(A) To remove the floor shelf, insert a screwdriver through the small opening on the left side of the oven cavity and carefully lift the floor shelf.
(B) For removal of lower antenna, use the same procedure as upper antenna.







6. Replacement of temperature sensor (Thermal protector)

(A) Cut 2 lead wires at the top of sensor terminals.
(B) Remove 2 screws holding temp sensor and replace with new one.
(C) Solder the lead wires securely to the sensor terminals.

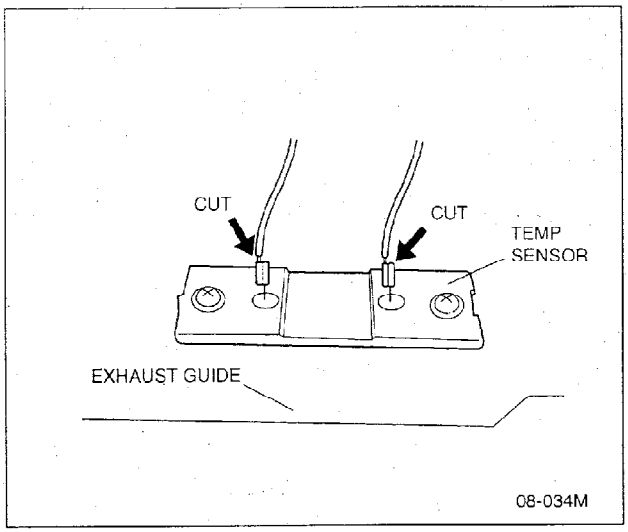
7. Disassembly of door assembly

(A) Remove each 2 bolts holding upper and lower hinges.
(B) Open the door and while pulling the door outward, work upper and lower hinges out through the holes of the front surface of oven.
(C) Remove door C (choke cover) from door E by carefully pulling outward starting from the upper right hand corner.
(D) Remove 2 screws holding door handle and separate door A from door E by carefully freeing catch hooks.
(E) Remove door key, door key lever, door key spring and handle pins from door E.
(F) Assemble the door by taking the above steps in a reverse order.

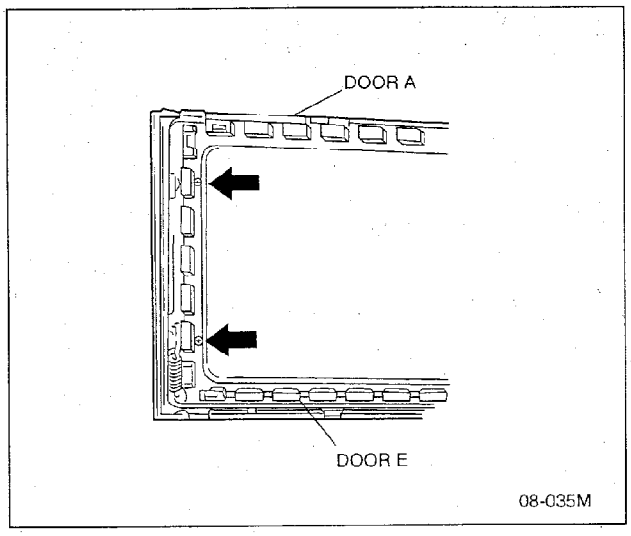
Replacement

(A) When mounting the door to the oven be sure to adjust the door parallel to the bottom line of the oven face plate by moving the upper hinge and lower hinge in the direction necessary for proper alignment.
(B) Adjust so that the door has no play between the inner door surface and oven front surface. If the door assembly is not mounted properly, microwave may leak from the clearance between the door and the oven.

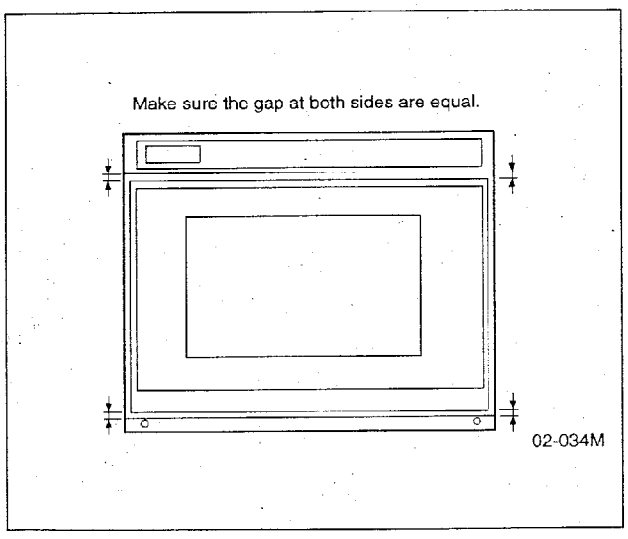
NOTE: Please refer to MEASURENMENT AND ADJUSTMENT.



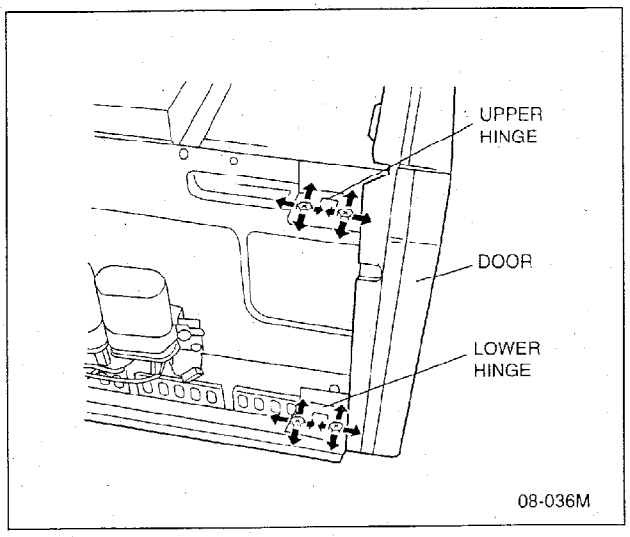
08-034M



08-035M



02-034M



08-036M

COMPONENT TEST PROCEDURE

CAUTION

1. High voltage is present at the high voltage terminal of the high voltage transformer during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitor.

1. High voltage transformer

(A) Remove connections from the transformer terminals and check continuity.
(B) Normal (cold) resistance readings should be as follows:

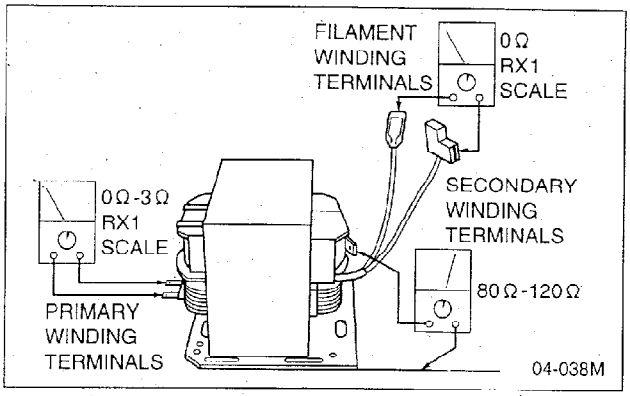
Secondary windi	Approx. 80 Ω - 120 Ω
Filament winding	Approx. 0 Ω
Primary winding	Approx. 0 Ω - 3 Ω

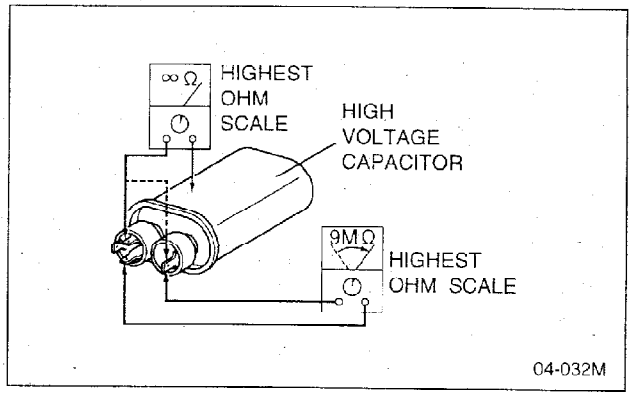
2. High voltage capacitor

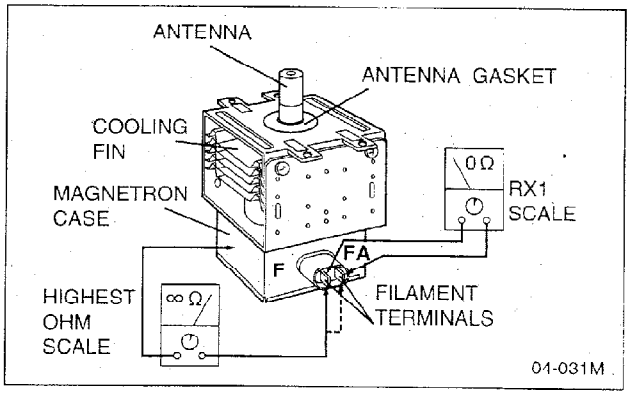
(A) Check continuity of capacitor with meter on highest OHM scale.
(B) A normal capacitor will show continuity for a short time, and then indicate 9MΩ once the capacitor is charged.
(C) A shorted capacitor will show continuous continuity.
(D) An open capacitor will show constant 9MΩ.
(F) Resistance between each terminal and chassis should be infinite.

3. Magnetron

Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron.
(A) Isolate magnetron from the circuit by disconnecting the leads.
(B) A continuity check across magnetron filament terminals should indicate one ohm or less.
(C) A continuity check between each filament terminal and magnetron case should read open.

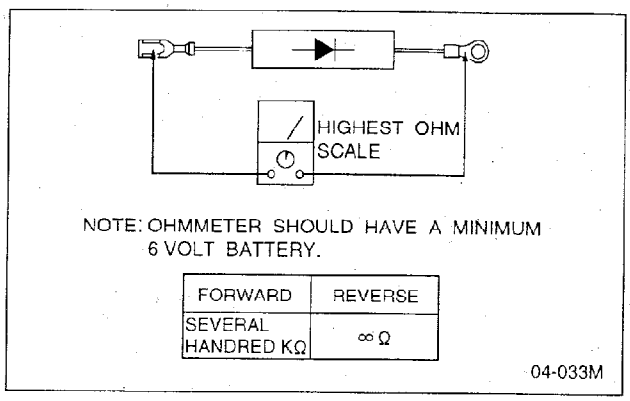






4. Diode

(A) Isolate the diode from the circuit by disconnecting the leads.
(B) With the ohmmeter set on the highest resistance scale, measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-to-back resistance of the diode, otherwise an infinite resistance may be read in both directions.
A normal diode's resistance will be infinite in one direction and several hundred kΩ in the other direction.

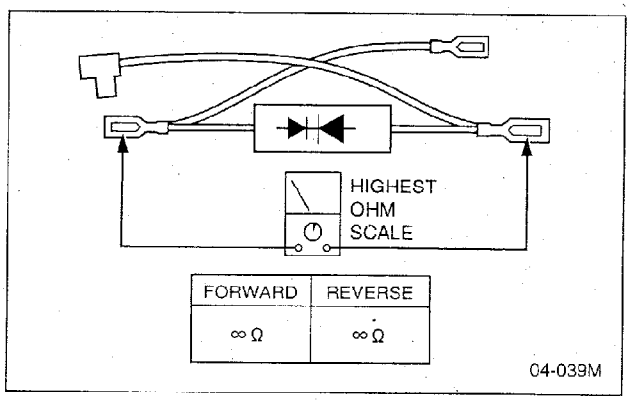


5. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit.

6. Protector diode

(A) Isolate the protector diode assembly from the circuit by disconnecting its leads.
(B) With the ohmmeter set on the highest resistance scale, measure the resistance across the protector diode terminals.
Reverse the meter leads and again observe the resistance reading.
A normal protector diode's resistance will be infinite in both directions.
It is faulty if it shows continuity in one or both directions.



7. Temp sensor (Thermal protector)

A temp sensor is mounted on exhaust guide. Its purpose is to automatically shut off the oven in case the cavity overheats for any reason.
The thermal protector will operate at 257°F (125°C).
The device is connected to the DPC on touch control models.
When the thermal protector exceeds its temperature it will turn off the power to oven cavity and display wil go to reset mode.
The cooking program can be reset after cool-down.
THERMISTOR RESISTANCE VALUE
30K-120K at 10°C-30°C (50°F-86°F)

MEASUREMENTS AND ADJUSTMENTS

1. Adjustment of Safety switch A, Safety switch B and short switch

(A) When mounting Safety switch A, Safety switch B and short switch to door hook assembly, mount the Safety switch A, Safety switch B and the short switch to the door hook assembly as shown in table.

NOTE: No specific adjustment during installation of Safety switch A, Safety switch B and short switch to the door hook is necessary.

(B) When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in table so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.

(C) Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the components test procedures.

2. Measurement of microwave output

The output power of magnetron can be determined by performing IEC standard test procedures. However, due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipmet:

* 1 liter beaker * Glass thermometer
* Wrist watch or stopwatch

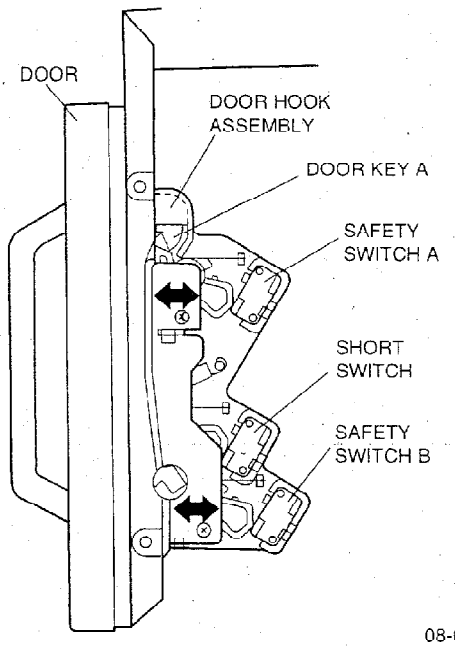
NOTE: Check the line voltage under load. Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurate as possible.

(A) Fill the beaker with exactly one liter of tap water. Stir the water using the thermometer and record the beaker's temperature (recorded as T1).

(B) Place the beaker on the center of glass cook plate. Set the oven for High power and heat it for exactly one minute.

(C) Stir the water again and read the temperature of the beaker (recorded as T2).

(D) The normal temperature rise (T2-T1) at High power position for each model is as shown in table.



08-038M

Please confirm that the gap between the switch housing and switch actuator levers is no more than 1.0 mm when the door is closed.

TABLE (1 ℓ -1min. test)

RATED OUTPUT	TEMPERATURE RISE
1400W (IEC-705)	Min. 12.5˚C
1600W (IEC-705)	Min. 14.5˚C
1800W (IEC-705)	Min. 16.0˚C

TROUBLESHOOTING GUIDE

CAUTION

1. Check grounding before checking for trouble.
2. Be cafeful of the high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the switches or the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
   When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be open or the connector cannot be removed.
5. Be sure to ground any static electric charge built up in your body, before handling the D.P.C.
6. A 230-240V AC is present at the shaded area of the power supply circuit board (Terminals of power relays and primary circuit of low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.

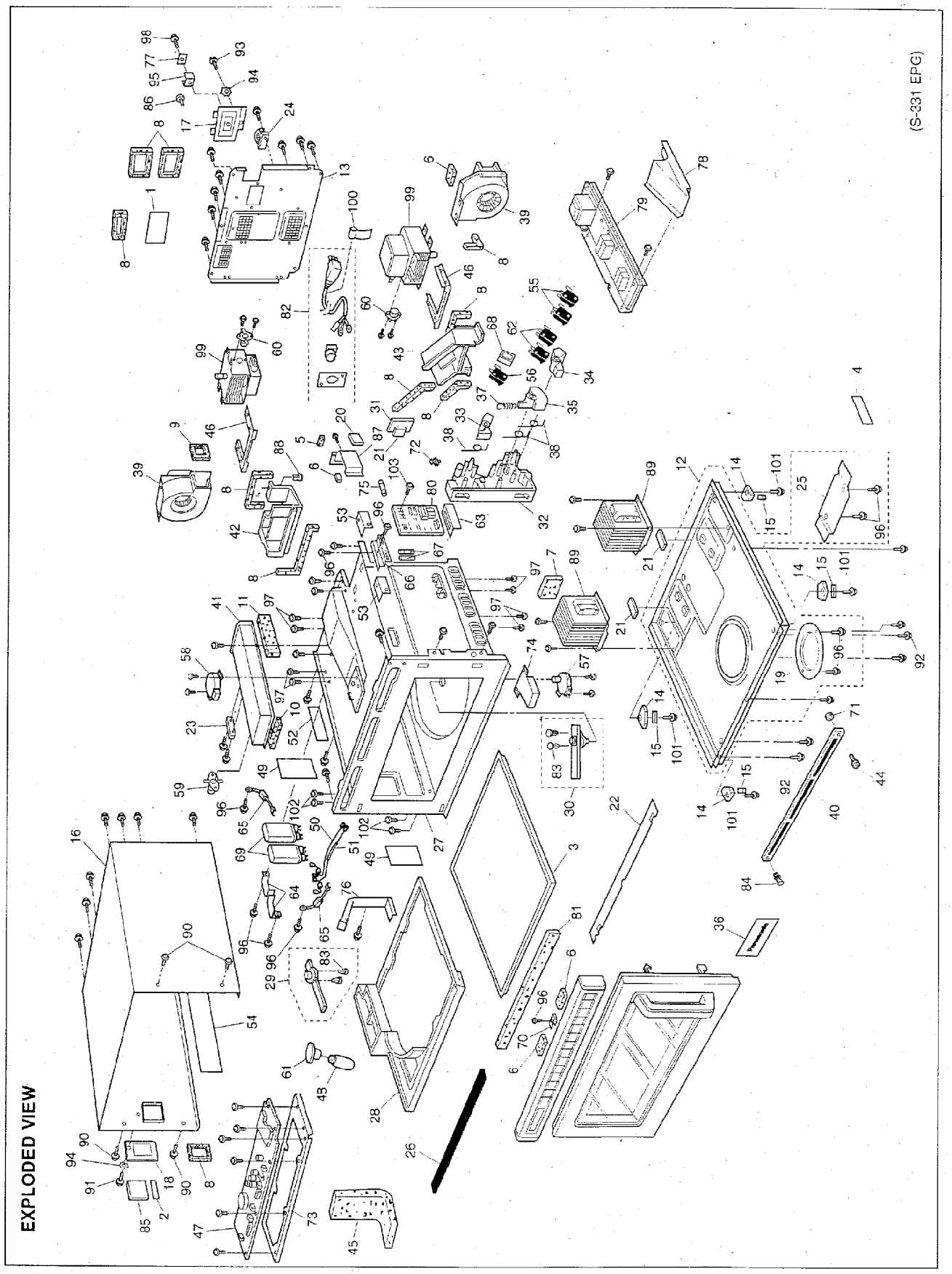
First of all operate the microwave oven following the correct operating procedures described on pages 3 of this service manual in order to find the exact cause of any trouble.

NOTE: If the unit shows faulty symptom as shown below, check the parts listed in possible cause column depending on failure indication e.g. F81, F82 in the display.

[TROUBLE 1] Oven does not operate at all or oven does not start cooking.

DISPLAY	CONDITIONS	POSSIBLE CAUSE	TIMING OF FAILURE INDICATION
F33	Open temperature sensor (exhaust)	1.Temperature sensor failure 2.Digital programmer circuit failure 3.Loose connector CN4	It is appeared when failure occured.
F34	Short temperature sensor (exhaust)	1.Temperature sensor failure 2.Digital programmer circuit failure	It is appeared when failure occured.
F44		1.Shorted power select switch 2.Shorted membrane switch	It is appeared 2 minuted after failure occured.
F01 (With continuous beep sounds)	Exhaust temperature exceeds 120°C	1.Burning food in the oven due to over cook	It is appeared when exhaust temperature exceeds above 120°C
F05	Memory failure	1.Digital programmer circuit failure	
No display	1.25A fuse blown	1.Switch failure SW4, SW5, SW6, SW7 2.Low-Voltage transformer failure	
No display	1.25A fuse is OK	1.Switch failure SW1, SW2, SW3 2.Low voltage transformer failure 3.Digital programmer circuit failure	
F81	No voltage supply to high voltage transformer (upper)	1.Relay failure RY-3 2.10A fuse open 3.Digital programmer circuit failure	It is appeared when cooking is completed.
F82	No voltage supply to high voltage transformer (lower)	1.Relay failure RY-4 2.10A fuse open 3.Digital programmer circuit failure	It is appeared when cooking is completed.
F86	Shorted contacts of RY-3	1.Relay failure RY-3 2.Digital programmer circuit failure	It is appeared when failure occured.
F87	Shorted contacts of RY-4	1.Relay failure RY-4 2.Digital programmer circuit failure	It is appeared when failure occured.

EXPLODED VIEW AND PARTS LIST



PARTS LIST

NOTE : When ordering replacement part(s), please use part number(s) shown in this parts list.
Do not use description of the part.
: Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
1		ANE00062Q0EP	CAUTION LABEL	1	
2		ANE0072Z70GP	CAUTION LABEL	1	
3		ANE010T8U0AP	SHELF	1	
4		A05243320EP	NAME PLATE	1	NE-1446 EPG
4		A05243320SP	NAME PLATE	1	NE-1446 SPG
4		A05243310EP	NAME PLATE	1	NE-1456
4		A05243340EP	NAME PLATE	1	NE-1846 EPG
4		A05243340SP	NAME PLATE	1	NE-1846 SPG
4		A05243330EP	NAME PLATE	1	NE-1856 EPG
4		A05243330SP	NAME PLATE	1	NE-1856 SPG
5		ANE0901000CD	CUSHION RUBBER A	1	
6		ANE000Z000AD	CUSHION RUBBER A	3	NE-1446,NE-1846
6		ANE000Z000AD	CUSHION RUBBER A	4	NE-1456,NE-1856
7		ANE0911000MG	CUSHION RUBBER B	1	
8		ANE000Z000AA	CUSHION RUBBER C	10	
9		ANE000Z000AB	CUSHION RUBBER C	1	
10		ANE0962000AP	CUSHION RUBBER D	1	
11		ANE0962000AV	CUSHION RUBBER D	1	
12		A100A-3280	BASE	1	W/FOOT, RUBBER FOOT (NOTE 1)
13		A100Q-3280	BACK PANEL	1	
14		A1007-3280	FOOT	4	
15		A1008-3280	RUBBER FOOT	4	
16		ANE10098U0AP	CABINET BODY	1	
17		A101H3170GP	BACK PANEL COVER	1	
18		ANE10268U0AP	LAMP COVER	1	
19		ANE10288U0AP	ANTENNA MOTOR COVER	1	
20		ANE10498U0AP	CUSHION RUBBER	1	
21		ANE1062-8U0	CUSHION RUBBER B	3	
22		ANE11268U0AP	BASE BRACKET	1	
23	⚠	A601L5150AP	TEMP SENSOR	1	
24		ANE11408A0AG	STOPPER	1	
25		ANE11668U0AP	BASE METAL	1	
26		ANE11748U0AP	SPACER	1	
27		A200A-3280	OVEN	1	
28		A2011-3470	CEILING PLATE	1	
29		A202K-3280	ANTENNA (U)	1	UPPER
30		A202R3320GP	ANTENNA B (U)	1	LOWER
31		ANE21208U0AP	SPACER	1	
32		A3020-3470	DOOR HOOK	1	
33		A3136-3470	HOOK SPACER A	1	
34		A3137-3470	HOOK SPACER B	1	
35		A3138-3470	HOOK SPACER C	1	
36		A31863320GP	DOOR PANEL	1	NE-1446
36		A31863310BP	DOOR PANEL	1	NE-1456
36		A31863340GP	DOOR PANEL	1	NE-1846
36		A31863330GP	DOOR PANEL	1	NE-1856
37		ANE32398U0AP	SPRING	1	
38		ANE32628U0AP	SPRING	3	
39	⚠	A400A3310GP	FAN MOTOR	2	55W
40		A400B-3280	AIR FILTER FLAME	1	
41		A400K-3180	EXHAUST GUIDE	1	
42		ANE40258U0AP	AIR GUIDE A	1	UPPER
43		ANE40268U0AP	AIR GUIDE B	1	LOWER
44		A4091-3280	SCREW	1	FOR AIR FILTER FLAME

(S-331 EPG)

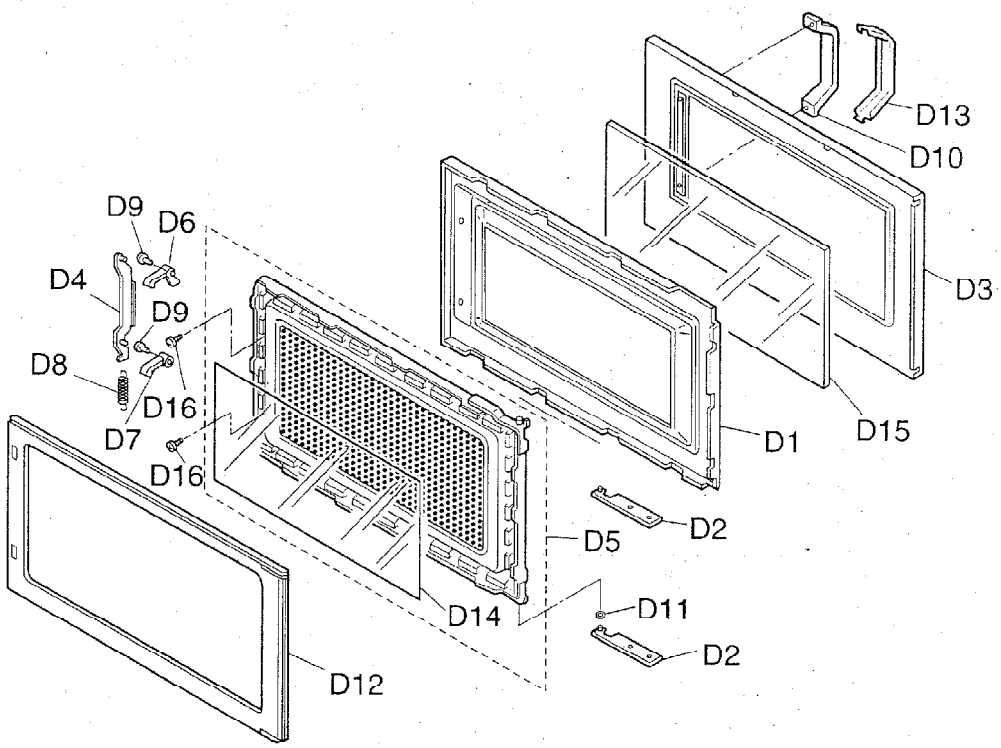
Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
45		ANE41038U0AP	AIR GUIDE CUSHION B	1	
46		ANE50328U0AP	MAGNETRON BRACKET	2	
47	⚠	A603L3320GP	D.P.CIRCUIT (U)	1	NE-1446,NE-1846 RTL (W/COMPONENT)
47	⚠	A603L3310GP	D.P.CIRCUIT (U)	1	NE-1456,NE-1856 RTL (W/COMPONENT)
48		ANE6030Q50GN	INCANDESCENT LAMP	1	240V,25W
49		ANE60408U0AP	OVEN LAMP SHEET	2	
50		A606V-3280	PROTECTOR DIODE	1	CONNECTOR COLOR:RED
51		A606W-3280	PROTECTOR DIODE B	1	CONNECTOR COLOR:BLUE
52		ANE60708U0BP	INSULATION SHEET A	1	
53		A6070-3280	INSULATION SHEET A	2	
54		A6071-3280	INSULATION SHEET B	1	
55	⚠	ANE6142-F60	MICROSWITCH	2	(V-15G-3C26) SECONDARY LATCH SWITCH
56	⚠	ANE61424L0AG	MICROSWITCH	1	(V-16G-3C26) PRIMARY LATCH SWITCH
57	⚠	A6144-3280	ANTENNA MOTOR	1	(2.5W) LOWER
58	⚠	A61446030AP	ANTENNA MOTOR	1	(2.5W) UPPER
59	⚠	A61454000AP	THERMAL CUTOUT	1	FOR OVEN
60	⚠	A61454210AP	THERMAL CUTOUT	2	FOR MAGNETRON
61	⚠	ANE61522Q0BP	SOCKET	1	
62		ANE6161-3X0	MICRO SWITCH	2	(V-16G-1C25) SHORT SWITCH
63		A6170-3280	INSULATION SHEET C	1	
64		ANE61888U0AP	CAPACITOR BRACKET	2	
65		A62024000AP	DIODE,SI	2	
66		ANE62298U0AP	MOUNTING BRACKET	1	
67	⚠	A62304210BP	FUSE	2	10A
68		ANE6238X20AP	SPACER	1	
69	⚠	A63903310GP	H.V.CAPACITOR	2	NE-1446,NE-1456 (AC2300V,0.82MF)
69	⚠	A63903330GP	H.V.CAPACITOR	2	NE-1846,NE-1856 (AC2300V,1MF)
70		ANE64086Q0AP	WASHER	1	NE-1456,NE-1856
71		A6408-3280	WASHER	1	FOR AIR FILTER FLAME
72		ANE65448U0AP	SPACER A	1	
73		A6585-3280	P.C.B.HOLDER	1	
74		A65943030GP	MOTOR COVER	1	
75	⚠	A65953170GP	FUSE	1	1.25A
76		ANE66038U0BP	OVEN LAMP BRACKET	1	
77		A66623170GP	EARTH SPACER	1	
78		A6688-3180	COVER	1	
79	⚠	A692M3310GP	L.V.TRANSFORMER (U)	1	
80	⚠	A692Y3310GP	NOISE FILTER (U)	1	
81		A8251-3180	SPACER	1	
82	⚠	A910A3310GP	AC CORD W/PLUG (U)	1	
83		ANE900T8V0AP	CLIP	4	FOR ANTENNA (U),ANTENNA B (U)
84		ANE90828U0AP	CLIP (BLACK)	1	FOR AIR FILTER FLAME
85		A10923310GP	INTERRUPTION COVER B	1	
86		ANE91438U0AP	CLIP (GRAY)	1	FOR BACK PANEL COVER
87		ANE91448U0AP	BRACKET	1	
88		ANE91628U0AP	CLIP B	1	FOR AIR GUIDE A
89		J600B3310GP	H.V.TRANSFORMER	2	1.5KVA
90		XTC4+10BC	SCREW	4	(4X10) FOR CABINET BODY
91		XTC4+10FC	SCREW	1	(4X10) FOR LAMP COVER
92		XTC4+12BK	SCREW (BLACK)	2	(4X12) FOR BASE
93		XTT4+8E	SCREW	1	FOR BACK PANEL COVER
94		XWC4BPN	WASHER	2	FOR BACK PANEL COVER, LAMP COVER
95		XWNANE65GV	SPACER	1	FOR BACK PANEL COVER
96		XYD4+EE12F	SCREW	10	NE-1446,NE-1846 (4X12) FOR MOUNTING DIODE, CAPACITOR BRACKET, AC CORD W/PLUG, ANTENNA MOTOR COVER, BASE METAL
96		XYD4+EE12F	SCREW	11	NE-1456,NE-1856 (4X12) FOR MOUNTING BRACKET, DIODE, CAPACITOR BRACKET, AC CORD W/PLUG, ANTENNA MOTOR COVER, BASE METAL, WASHER
97		XYEANE5+C16T	SCREW	8	(5X16) FOR MAGNETRON

(S-231 EPG)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
98		XYE6+F20F	SCREW	1	(6X20) FOR BACK PANEL COVER
99	⚠	2M210-M1ECOM	MAGNETRON	2	
100		ANE0239X70SP	CORD CAUTION LABEL	1	NE-1446 SPG, NE-1846 SPG, NE-1856 SPG
101		XTWANE3+8EX	SCREW	4	3X8 (FOR FOOT)
102		XSWANE5+10U	SCREW	4	5X10 (FOR HINGE)
103		XYN4DF10BN	SCREW	1	4X10 (FOR NOISE FILTER)

NOTE 1 : Please order name plate together.

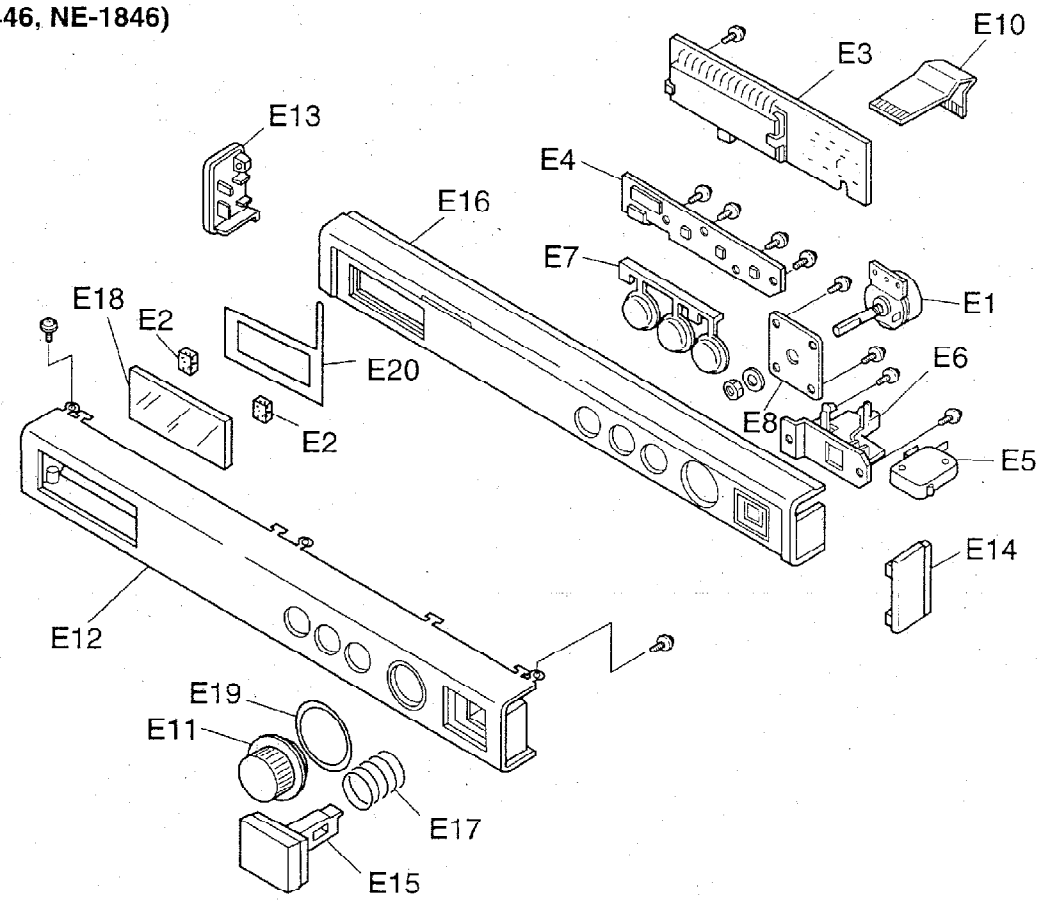
DOOR ASSEMBLY



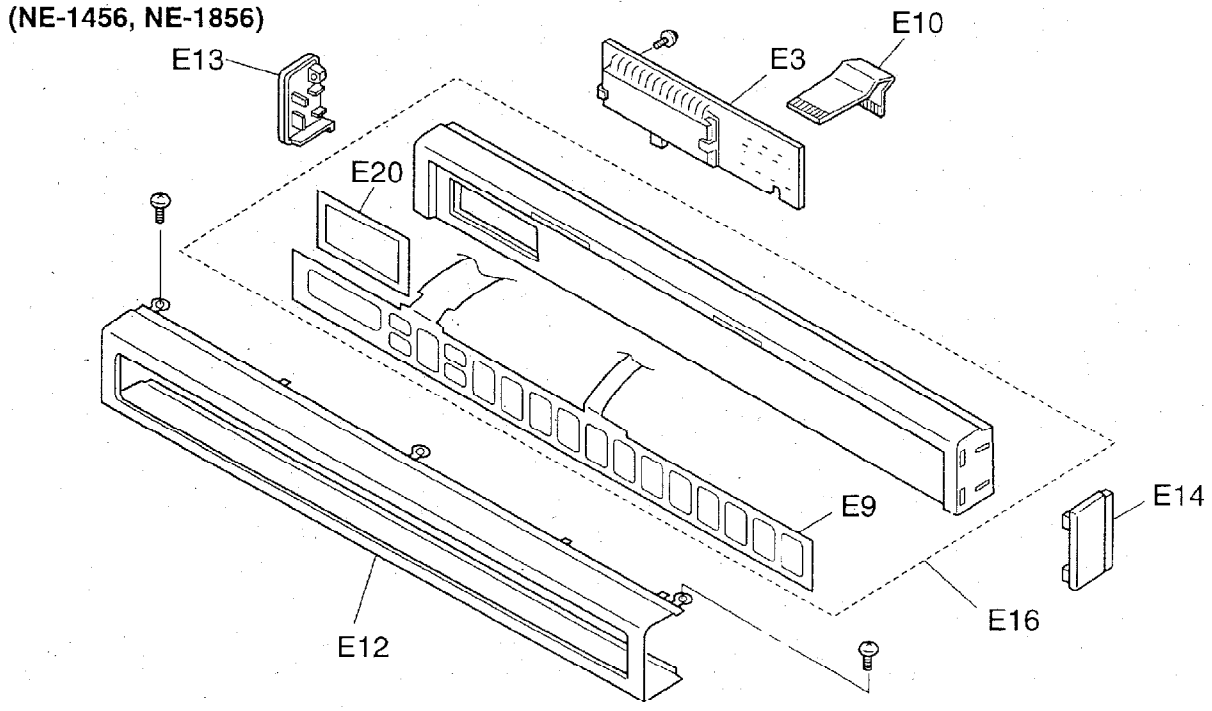
(S-331 EPG)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
D1		ANE30038U0AP	DOOR FRAME (U)	1	
D2		ANE30078U0AP	HINGE	2	
D3		ANE301A8U0AP	DOOR A	1	
D4		ANE301H8U0AP	DOOR KEY LEVER B	1	
D5		ANE301Q8U0AP	DOOR E (U)	1	
D6		ANE30188U0AP	DOOR KEY	1	
D7		ANE30198U0AP	DOOR KEY B	1	
D8		ANE30218U0AP	DOOR KEY SPRING	1	
D9		ANE30562Q0AP	HANDLE PIN	2	
D10		A30703170GP	HANDLE PEICE A	1	
D11		ANE3081P60AP	DOOR HINGE SPACER	1	
D12		ANE30858U0AP	DOOR C	1	
D13		ANE31348U0AP	HANDLE PEICE B	1	
D14		ANE31458U0AP	DOOR SCREEN A	1	
D15		ANE31468U0AP	DOOR SCREEN B	1	
D16		XYEANE4+C16T	SCREW	2	4X16

ESCUTCHEON BASE ASSEMBLY
(NE-1446, NE-1846)



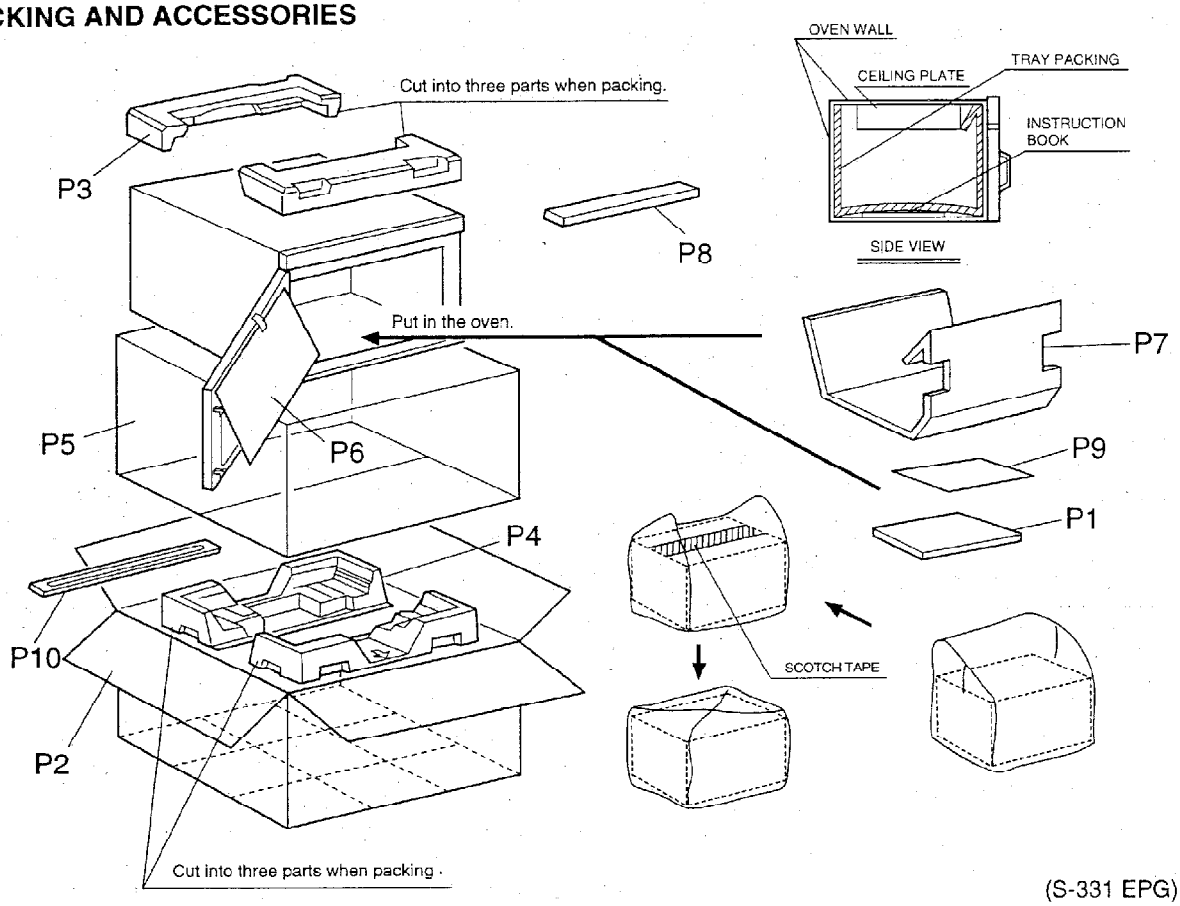
(NE-1456, NE-1856)



(S-331 EPG)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
E1		A03553320GP	TIMER	1	NE-1446,NE-1846
E2		ANE0921000BA	CUSHION RUBBER C	2	NE-1446,NE-1846
E3		A603M3310GP	PC BOARD B (U)	1	
E4		ANE605Q8Y0BP	PC BOARD F (U)	1	NE-1446,NE-1846
E5	⚠	ANE61424L0AG	MICROSWITCH	1	NE-1446,NE-1846 (V-16G-3C26)
E6		ANE61628Y0BP	START SWITCH BRACKET	1	NE-1446,NE-1846
E7		ANE62648Y0BP	SELECT SWITCH BUTTON	1	NE-1446,NE-1846
E8		ANE63438Y0BP	TIMER BRACKET	1	NE-1446,NE-1846
E9	⚠	A64793310GP	MEMBRANE SWITCH	1	NE-1456,NE-1856
E10		A6590-3280	FLAT CABLE	1	
E11		ANE800D8Y0BP	TIMER KNOB	1	NE-1446,NE-1846
E12		ANE801N8Y0BP	ESCUTCHEON A (U)	1	NE-1446,NE-1846 (W/SPACER)
E12		ANE801N8U0AP	ESCUTCHEON A (U)	1	NE-1456,NE-1856 (W/SPACER)
E13		ANE80028U0AP	ESCUTCHEON B	1	
E14		ANE80068U0AP	ESCUTCHEON D	1	
E15		ANE803X8Y0BP	START BUTTON	1	NE-1446,NE-1846
E16		ANE80348Y0BP	ESCUTCHEON BASE	1	NE-1446,NE-1846
E16		A800L3310GP	ESCUTCHEON BASE (U)	1	NE-1456,NE-1856
E17		ANE80378Y0BP	COOK BUTTON SPRING	1	NE-1446,NE-1846
E18		A81263320GP	SMOKE PANEL	1	NE-1446,NE-1846
E19		ANE82878Y0BP	SPACER A	1	NE-1446,NE-184
E20		A83373320GP	ESCUTCHEON SHEET	1	NE-1446,NE-1846
E20		A8337-3280	ESCUTCHEON SHEET	1	NE-1456,NE-1856

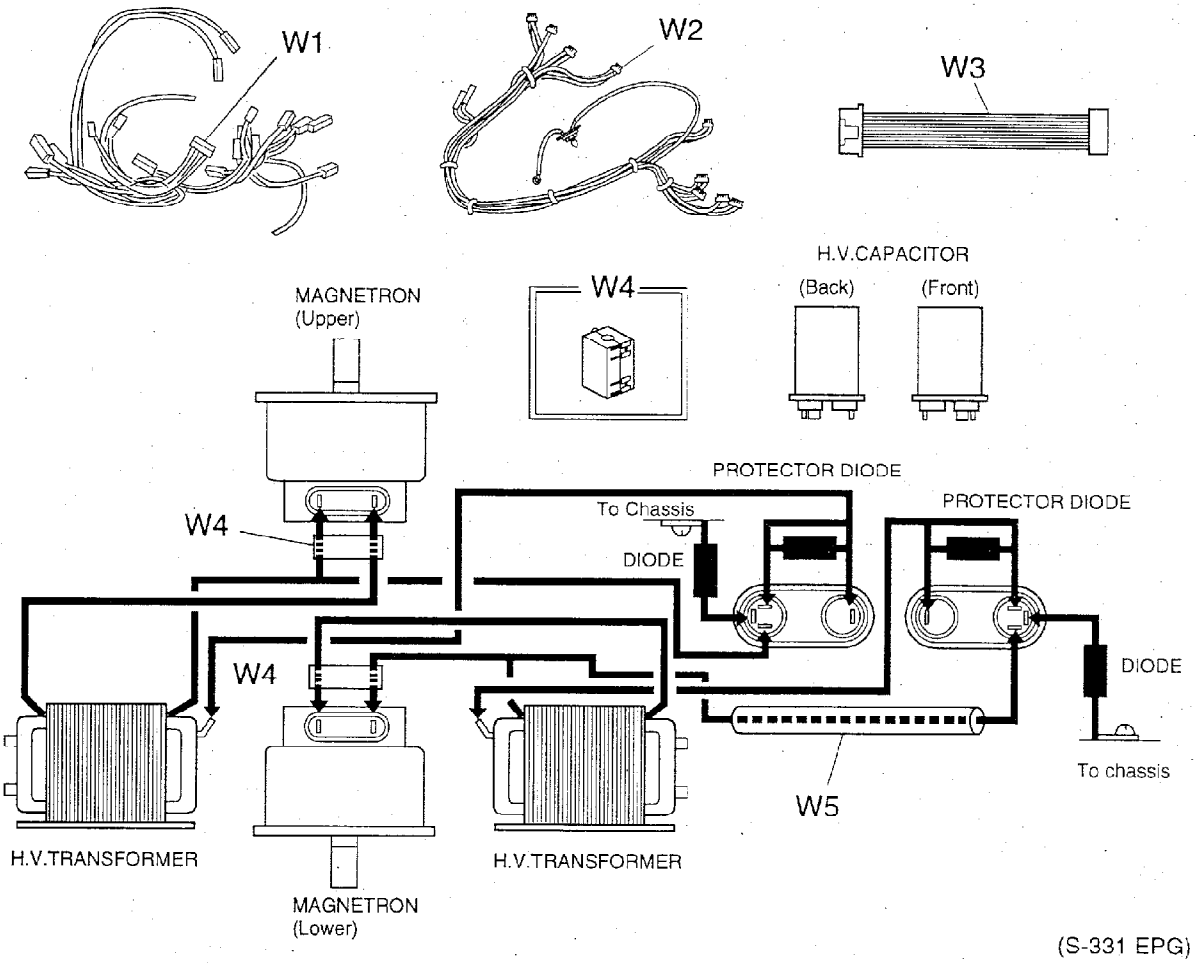
PACKING AND ACCESSORIES



(S-331 EPG)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
P1		A00033320EP	INSTRUCTION BOOK	1	NE-1446 EPG,NE-1846 EPG
P1		A00033320SP	INSTRUCTION BOOK	1	NE-1446 SPG,NE-1846 SPG
P1		A00033310EP	INSTRUCTION BOOK	1	NE-1456,NE-1856 EPG
P1		A00033330SP	INSTRUCTION BOOK	1	NE-1856 SPG
P2		A01023320EP	PACKING CASE,PAPER	1	NE-1446 EPG
P2		A01023320SP	PACKING CASE,PAPER	1	NE-1446 SPG
P2		A01023310EP	PACKING CASE,PAPER	1	NE-1456
P2		A01023340EP	PACKING CASE,PAPER	1	NE-1846 EPG
P2		A01023340SP	PACKING CASE,PAPER	1	NE-1846 SPG
P2		A01023330EP	PACKING CASE,PAPER	1	NE-1856 EPG
P2		A01023330SP	PACKING CASE,PAPER	1	NE-1856 SPG
P3		ANE01048U0AP	UPPER FILLER	1	
P4		ANE01058U0AP	LOWER FILLER	1	
P5		A01065200AP	VINYL COVER	1	
P6		ANE01072Q0AP	DOOR SHEET	1	
P7		A01083310GP	TRAY PACKING	1	
P8		A01453230BP	DOOR SHEET B	1	
P9		A1134-3280	FOOT BRACKET	1	

WIRING MATERIAL



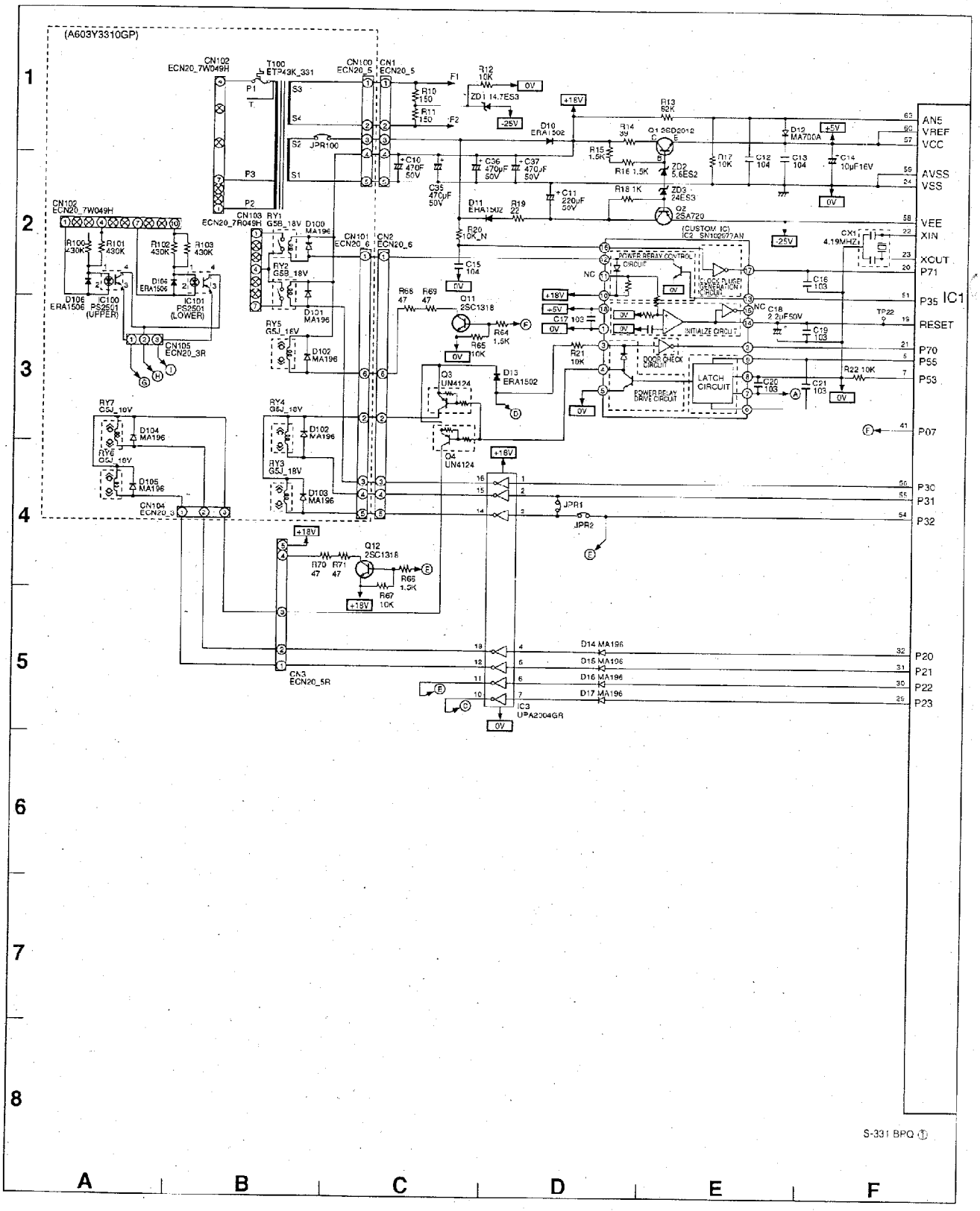
(S-331 EPG)

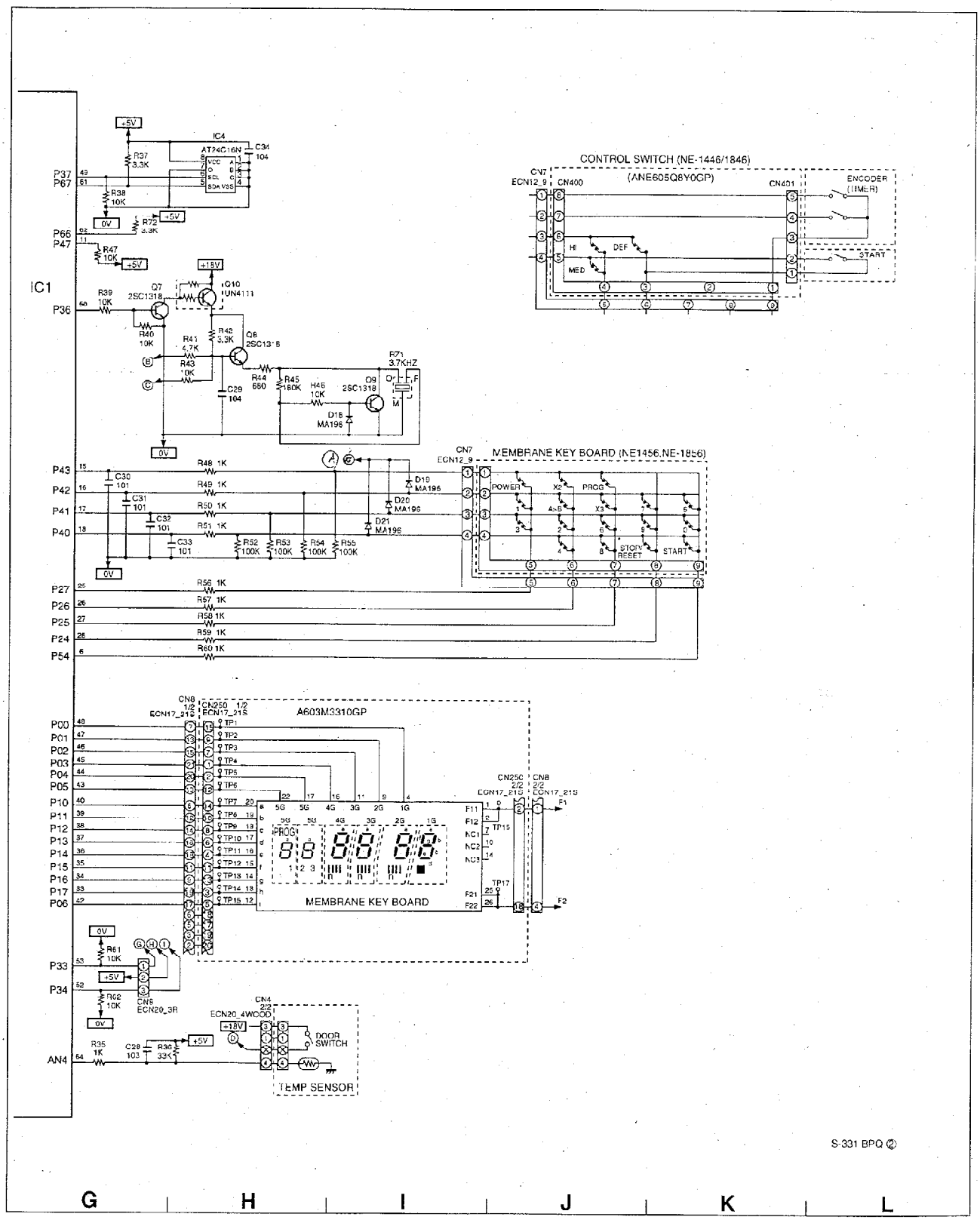
Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
W1		A030A3310GP	LEAD WIRE HARNESS	1	
W2		A030H3310GP	LEAD WIRE HARNESS B	1	
W3		A03543320GP	LEAD WIRE	1	NE-1446,NE-1846
W4		A50966520UP	FERRITE CORE	2	
W5		A61393230BP	INSULATION TUBE	1	

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
REF NO. 79 L. V. TRANSFORMER (U)					
		ANE61158U0AP	POWER RELAY BRACKET	1	
		ANE65448U0AP	SPACER A	6	
		ANE65458U0AP	SPACER B	2	
		A6338-3280	INSULATION SHEET B	1	
		XYN3+F25S	SCREW	2	3X25
CN100		AEEMMF01F05W	CONNECTOR	1	5PIN
CN101		AEEMMF03F06W	CONNECTOR	1	6PIN
CN102		AEEMMD04907W	CONNECTOR	1	7PIN
CN103		AEEMMD04907R	CONNECTOR	1	7PIN
CN104		AEEMMF00703W	CONNECTOR	1	3PIN
CN105		AEEMMF00703R	CONNECTOR	1	3PIN
CN106		AEEMMD24910W	CONNECTOR	1	10PIN
D100,101, 102,103, 104,105,		MA196-(TA5)	DIODE,SI	7	
D106,107		AEDNERA1506	DIODE,SI	2	
IC100,101		AEICP25011HL	L.S.I	2	
R100,101, 102,103,		ERDS1TJ434T	CARBON FILM RESISTOR	4	430KΩ,1/2W,±5%
RY1	⚠	AEBG5B18P-1	POWER RELAY	1	18V (G5B-1-ER18)
RY2	⚠	AEBG5B1E18	POWER RELAY	1	18V (G5B1-E)
RY3,4,5	⚠	AEG5J1EM18B	POWER RELAY	5	18V (G5J-1-TP-M-ER18)
T100	⚠	ETP43KZN61CN	L.V.TRANSFORMER	1	
REF NO. 80 NOISE FILTER (U)					
C1		ECQE2A474MWA	POLYESTER CAPACITOR	1	0.47MF,250V,±20%
C2,3		ANE6169A20GN	CAPACITOR	2	0.022MF,250V,±20%
CN10		AEEMMD00703W	CONNECTOR	1	3PIN
D1		ERZC10DK621F	VARISTOR	1	
D2,3		ERZC10DK112R	VARISTOR	2	
F1,2		A62316010BP	FUSE HOLDER	4	
F3		A62316000GP	FUSE HOLDER	2	
L1		A621A3310GP	FILTER COIL	1	
R1		ERF15ZXJ240	RESISTOR	1	24Ω,15W,±5%
REF NO. E3 P. C. BOARD B (U)					
		ANE82848U0AP	SPACER CUSHION	1	
CN250		AEEMHLEM21S	CONNECTOR	1	21PIN
DISP250		A64563080AP	FLUORESCENT TUBE	1	
REF NO. E4 P. C. BOARD F (U)					
CN400		AEEMS08BEH	CONNECTOR	1	8PIN
CN401		AEEMS05BEH	CONNECTOR	1	5PIN
SW400, 401,402		EVQQTG05G	SWITCH	3	

DIGITAL PROGRAMMER CIRCUIT

SCHEMATIC DIAGRAM




CONTROL SWITCH (NE-1446/1846)
(ANE605Q8Y0CP)
CN7
ECN12_9
CN400
CN401
ENCODER (TIMER)
START
HI
DEF
MED
IC1
IC4
AT24C16N
+5V
0V
+18V
P37
P67
P66
P47
P36
P43
P42
P41
P40
P27
P26
P25
P24
P54
P00
P01
P02
P03
P04
P05
P10
P11
P12
P13
P14
P15
P16
P17
P06
P33
P34
AN4
Q7 2SC1318
Q10 UN4111
Q8 2SC1318
Q9 2SC1318
D10 MA196
D20 MA196
D21 MA196
D18 MA195
MEMBRANE KEY BOARD (NE1456,NE-1856)
POWER
PROG
STOP/ RESET
START
CN8 1/2
ECN17_21S
CN250 1/2
A603M3310GP
MEMBRANE KEY BOARD
CN250 2/2
CN8 2/2
CN5
ECN20_3R
CN4 2/2
ECN20_4WOOD
DOOR SWITCH
TEMP SENSOR
S-331 BPQ ②

DIGITAL PROGRAMMER CIRCUIT

PARTS LIST

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
BZ1	EFBRL37C20	BUZZER	1	3.7KHZ
C10,35,36,37	ECA1HM471B	ELECTOROLYTIC CAPACITOR,AL	4	470MF/50V
C11	ECA1HM221B	ELECTROLYTIC CAPACITOR,AL	1	220MF/50V
C12,13,15, 22,25,27,28, 29,34	AECF50F104Z	CERAMIC CAPACITOR	9	0.1MF/50V
C14	ECEA1CKA100B	ELECTROLYTIC CAPACITOR,AL	1	10MF/16V
C16,17,19, 20,21	ECBT1E103ZF5	CERAMIC CAPACITOR	5	0.01MF/25V
C18	ECEA1HKA2R2B	ELECTROLYTIC CAPACITOR,AL	1	2.2MF/50V
C23,24,26, 30,31,32,33	ECBT1H101KB5	CERAMIC CAPACITOR	7	0.0001MF/50V
CN1	AEEMMF01F05W	CONNECTOR	1	5PIN
CN2	AEEMMF03F06W	CONNECTOR	1	6PIN
CN3	AEEMMF01F05R	CONNECTOR	1	5PIN-RED
CN4	AEEMMF00D04W	CONNECTOR	1	4PIN
CN7	AEEMMD1FF0SW	CONNECTOR	1	NE-1446,NE-1846 9PIN
CN7	AEEM09FDZBTM	CONNECTOR	1	NE-1456,NE-1856
CN8	AEEMHLEM21S	CONNECTOR	1	
CN9	AEEMMF00703R	CONNECTOR	1	3PIN-RED
CX1	EFOGC4194T4	RESONATOR	1	4.19MHZ
D10,11,13	AEDNERA1502	DIODE,SI	3	1.0A
D12	MA700A-(TA)	DIODE,SI	1	0.03A
D14,15,16, 17,18,19,20, 21	MA196-(TA5)	DIODE,SI	8	0.1A
IC1	AEIC38122256	LSI	1	
IC2	AEIC102977AN	IC	1	AN5752
IC3	AEICU2004GR	IC	1	
IC4	AEICAT24C16N	IC	1	
Q1	⚠ AEGHPH0124BS	POWER RELAY	1	
Q1	2SD2012	TRANSISTOR,SI,2W	1	3MHZ
Q2,5	2SA720PRTA	TRANSISTOR,SI,400mW	2	200MHZ
Q3,4	UN4124-(TA)	TRANSISTOR,SI,300mW	2	
Q6,7,8,9,11, 12	2SC1318QSTA	TRANSISTOR,SI,400mW	6	200MHZ
Q10	UN4111-(TA)	TRANSISTOR,SI,300mW	1	
R10,11	ERDS2TJ151T	CARBON FILM RESISTOR	2	150Ω,1/4W,5%
R12,17,21, 22,23,25,27, 34,38,39,40, 46,47,61,62, 63,65,67	ERDS2TJ103T	CARBON FILM RESISTOR	18	10KΩ,1/4W,5%
R13	ERDS2TJ823T	CARBON FILM RESISTOR	1	82KΩ,1/4W,5%
R14	ERDS2TJ390T	CARBON FILM RESISTOR	1	39Ω,1/4W,5%
R15,16,32, 64,66	ERDS2TJ152T	CARBON FILM RESISTOR	5	1.5KΩ,1/4W,5%
R18,24,26, 28,29,30,31, 35,43,48,49, 50,51,56,57, 58,59,60	ERDS2TJ102T	CARBON FILM RESISTOR	18	1.0KΩ,1/4W,5%
R19	ERDS2TJ220T	CARBON FILM RESISTOR	1	22Ω,1/4W,5%
R20	ERDS2FJ103T	CARBON FILM RESISTOR	1	10KΩ,1/4W,5%
R33,44	ERDS2TJ681T	CARBON FILM RESISTOR	2	680Ω,1/4W,5%
R36	ERDS2TJ333T	CARBON FILM RESISTOR	1	33KΩ,1/4W,5%
R37,42,72	ERDS2TJ332T	CARBON FILM RESISTOR	3	3.3KΩ,1/4W,5%
R41	ERDS2TJ472T	CARBON FILM RESISTOR	1	4.7KΩ,1/4W,5%
R45	ERDS2TJ184T	CARBON FILM RESISTOR	1	180KΩ,1/4W 5%
R52,53,54,55	ERDS2TJ104T	CARBON FILM RESISTOR	4	100KΩ,1/4W,5%
R68,69,70,71	ERDS2TJ470T	CARBON FILM RESISTOR	4	47Ω,1/4W,5%
ZD1	AEDZ4R7ES3T1	ZENER DIODE,SI	1	

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
ZD2	AEDZ5R6ES2T1	ZENER DIODE,SI	1	
ZD3	AEDZ24ES3T1	ZENER DIODE,SI	1	

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